THE SCHOOL REVIEW
A JOURNAL OF SECONDARY EDUCATION

VOLUME XXIII DECEMBER 1915 NUMBER 10

THE PROBLEM OF INDIVIDUAL DIFFERENCES IN THE TEACHING OF SECONDARY-SCHOOL MATHEMATICS

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In the October number of the *School Review*[1] the writer discussed various devices aiming to meet the needs of the slow worker in mathematics. These devices reflected by current practice in institutions offering practice teaching courses are: (1) conferences with teachers and student teachers in hours other than the class period; (2) special supervised classes of study; (3) division of classes into separate sections on the basis of ability; (4) the use of bright students as instructors of the slow students (this device was found to to be in extensive use; a report of an experiment aiming to evaluate this device by testing the effect of classroom communication on the learning process was presented, the objective evidence tending to show that not only was the slow student weakened but the fast worker lost in interest and efficiency); and (5) a definitely organized minimum course of study.

SUPPLEMENTARY DISCUSSION OF (4) AND (5)

Communications from teachers of mathematics received by the writer after the discussion of the foregoing topics raised specific issues relating to the use of fast workers as teachers of the slow

[1] "The Problem of Individual Differences in the Teaching of Secondary-School Mathematics," pp. 535–49.

students, and to a minimum course, which make it necessary that the discussion of these topics be briefly supplemented here.

The first issue, raised with reference to the use of bright students as teachers of the slow students, is stated as follows: The evidence submitted is an attack on the monitorial system. The arguments in favor of the monitorial system are: (*a*) The history of education shows that systems using the monitorial method were generally more efficient than contemporary systems which did not employ the monitorial method. (*b*) All learning from the student's point of view is communication between the learner and the textbook, the teacher, or with other members of the group. In the process of teaching a new principle, communication between members of the group may be more effective than the teacher or the textbook because the student who has just learned the principle will talk in terms of the learner (psychological method), whereas the teacher and the representative textbook talk in logical terms which are foreign to the student's thinking processes.

Obviously the schools referred to in (*a*) are the Lancasterian schools of England[1] and the Jesuit schools.[2] It is admitted that these schools were superior to contemporary systems largely because of the monitorial method. The competing schools were inferior systems lacking organization of the mechanical routine and using the individual-pupil method of instruction. Hence there was little time for teaching. It is axiomatic that the monitorial system is essential to efficiency in manipulating the mechanics of schoolroom procedure. In general, the most efficient teachers devise technique of taking roll, collecting papers, passing papers, ventilating, heating, etc., by reliable pupils under supervision. But the evidence of the reported experiment in the University High School tends to prove that it is false to assume that the efficiency of the monitorial system carries over into the teaching process.

The argument that students discussing a problem in a group talk in terms which are nearer the pupil's comprehension, i.e., the arrangement of material is more psychological, was also vigorously

[1] For description see Parker, *The History of Modern Elementary Education*, pp. 101–7.

[2] See Monroe, *Textbook in the History of Education*, p. 439.

advocated by fellow-students in a graduate class in the University of Chicago. The fact is, as the experiment showed, that what really happens is not teaching at all, but a "showing" process, a driving to the end in view. Beginning practice teachers frequently go through the same "showing" process in attempting to teach: they have the logical arrangement of subject-matter, not the psychological. In my own experience with practice teachers it has been difficult to convince them that the learner approaches the subject in a different way. Again and again a practice teacher will say: "I don't see why I could not drive this thing home when it was so 'dead easy' and in such definitely organized form." The trouble lay in the fact that she had forgotten the inductive propaedeutic development that had led to the easily comprehended mathematical concept in her own mind. She sees the end in view as she drives forward with the class in the attempt to hurdle all intervening steps. Her method, similar to the method of the fast worker, is a showing process, not a teaching process: it is logical not psychological. After a few fatal experiences the practice teacher begins to see what the instructor of her special methods course has been talking about; she realizes that the logical arrangement of subject-matter in her mind must be set aside and be displaced by a new arrangement built up in the light of a practical psychology, which teaches the approach to a concept from the point of view of one who learns versus the method of one who knows. It is possible that the moment the fast worker grasps the mathematical principle his mind throws the subject-matter into logical order. At any rate, the displacements in the tables in the October number tend to show that the slow worker was mentally dragged over the ground and that only the "B" and "B+" students "got the point" in the monitorial system of instruction.

This concludes the supplementary discussion of the monitorial system, which was permitted to grow somewhat lengthy because (*a*) it has gained wide use in current practice without having its validity as a teaching device established; (*b*) it is pedagogically important that its validity be tested by experiments more scientifically controlled than the one described; (*c*) the experiment puts the burden of proof on the group-study advocates. The limit of

diminishing returns seems to be reached at an early stage. It appears to be easy to overwork the informality idea in a classroom. In the past the objection to classroom communication was based on disciplinary grounds; it is entirely probable that further experimentation would result in teachers of mathematics clinging close to the old ideal on an entirely different basis, namely, efficiency.

A reaction to the suggested minimum course seems to be the argument that a standardized minimum course implies too detailed an organization of daily work which would tend to rob the teacher of his individuality. It is true that a minimum course demands a very high degree of organization. It means that every teacher in a department knows what every other is doing day by day; and every pupil has before him a printed outline of specific principles and typical examples which represents the least he must accomplish in order to obtain a mere passing-grade. But the matter of robbing teachers of individuality need not concern us seriously. Recent educational literature has produced considerable "poppycock" on the subject of individuality. It is possible that teachers of mathematics have an enormous surplus supply of individuality as it is commonly interpreted. Bagley[1] and Parker[2] present convincing argument on the point that there is ample scope for the expression of spontaneity, individuality (of the desirable sort), and reasoning within a well-controlled, routinized system. The point is that a great majority of teachers of mathematics could profit considerably by an exchange of that which is cherishingly called individuality for well-defined and accepted standards of procedure. The writer taught three years in the ranks of a system routinized to its minutest details in subject-matter and classroom mechanics, but did not hear a single suggestion that someone had carted off individuality. Individuality has no business inserting or rejecting topics, fixing arbitrary time limits to topics, or determining what principles shall be taught—clearly these are administrative functions. Individuality may come to its own in the actual teaching of a given principle to a given class.

[1] *Classroom Management*, p. 32.

[2] *Methods of Teaching in High Schools*, p. 28.

Up to this point the discussion has been directed so as to supplement current literature aiming to meet the needs of the slow student. The following pages will be devoted to consideration of the fast worker by descriptions of specific devices calculated to meet his needs.

THE FAST WORKER

It will be recalled that the second question asked of critic teachers of mathematics was: "What are you doing for the fast worker?" The replies reflect neglect as contrasted with the sincere efforts directed to help the slow worker. Many critic teachers supplement the formal questionnaire with personal letters in which they were eager to tell what they were doing for the slow student, but the replies relating to the fast worker were expressed in such generalities that they are not worth reproducing here. All of the responses would fall into two groups: (1) use of fast workers as monitors or instructors of slow students; (2) the assigning of supplementary reading-material or interesting problems of greater difficulty. The first has been shown to be a procedure of doubtful value. It will later be shown that current practice makes the second device equally meaningless. With the exception of a few good teachers, and a large number of mediocre teachers who direct their searching to the fast workers, the situation may be summarized as being marked by utter neglect of the needs of the fast worker.

EUROPEAN VERSUS AMERICAN IDEA

But this situation does not prevail in the European schools. The English system, characterized by its complex examination system, and the selective German *Gymnasium*, ever pointed toward picking the leaders, are good examples in which the emphasis is placed at the other end of the problem. This is a striking contrast to the American idea that the secondary school shall do its share in correcting the inequality of physical strength and intellect that nature has imposed upon men. Thus we see a definite reason why our early efforts were directed toward developing the technique of the slow worker when the existence of the problem of individual differences was established in the consciousness of school men.

POSSIBILITIES OF BRIGHT STUDENT

Teachers of mathematics have vaguely recognized the undeveloped mental resources of the bright student, but have usually hoped that he would somehow come to his own in spite of this neglect. It is due to the practical psychologist, Thorndike, and his research students at Columbia that school men realize the possibilities. In chap. vi of his *Principles of Teaching*, Thorndike demonstrates on a statistical basis how great the amount of difference in capacity between the fast and the slow workers really is. His conclusion is that in an ordinary class the brightest tenth will in any one trait have an average ability from one and three-fourths to four times that of the lowest tenth. Pedagogically interpreted this conclusion means that with the ordinary teacher teaching a representative class and directing the work to meet the capacity of the middle group, there are, roughly speaking, a fourth of the students who are being dragged over the ground at so rapid a rate as to be hopelessly confused, and a fourth of the students who could easily do twice as much work.[1] All data collected in various educational experiments support the conclusion and the interpretation. Hence we see the vast possibilities that may be attained by a proper direction of the ability of the fast worker. Concerning the importance of the problem Judd says: "It is time for us to learn to guide those who do excellent work quite as much as those who do a low grade of work."[2]

CLASSIFICATION ON BASIS OF ABILITY

The obvious logical solution to this problem is registration of students in classes on the basis of ability. This means that the fast workers would be grouped into one section. It has been noted in another connection that the high schools which are using this method are enthusiastic in its support. A considerable number of elementary schools are organized on this basis. For a time the University Elementary School organized the classes containing sufficient numbers on this basis. Principal Harry O. Gillet is convinced not only that the plan is the economical one for an elemen-

[1] See Parker, *Methods of Teaching in High Schools*, p. 372.

[2] *Psychology of High-School Subjects*, p. 472.

tary school, but that sooner or later the American high school will be organized on this basis. With the addition of the junior high school such sections could go on without interruption in the high-school work.

The only argument against the plan advanced by those who have not tried it, besides administrative difficulties (in program), is that it might discourage the slow worker, and that the slow sections are difficult to teach. What really happens is that the slow, conscientious plodder is discouraged by the showing of the brilliant students, and by his failure to grasp the material as it flashes past him. If no great ado is made about the social prestige attached to such classification, slow students prefer to work in sections where they can hold their own. Leaders of such sections soon develop as the work moves along with interest as high as in other sections. Nor need any importance be attached to the second argument. A real teacher will welcome the opportunity to try his pedagogy on slow sections. The writer has seen a colleague (Mr. Breslich) teach a demonstration lesson to a very slow section with such enthusiasm and success that the large number of visitors did not even suspect that the class was below standard.

It is only possible to guess the large amount of work a section of bright students could accomplish in four years' work. There are numerous examples published in which sections of fast workers accomplished far more than the usual amount. Parker (p. 382) in the text referred to above describes a school in which "the first section commonly completed Wentworth's *Plane and Solid Geometry* in one year." The writer is convinced that he could give all the work commonly given in two years to a section of fast workers in one year, and that such a section would compare favorably with students of equal ability spending two years in ordinary ungraded classes. Perhaps such a section could do all mathematics through elementary calculus in four years of high school. At any rate the German *Gymnasium* somehow succeeds in saving two years, and it may be largely due to the selective process that eliminates all slow workers.

This classification would greatly stimulate interest. Mathematics teachers are familiar with the intermittent interest of a fast

worker during an inductive development which at times lags to the extent that he may actually miss the finer interrelations but rapidly increases as the rate of progress is accelerated. In the process of picking a Freshman mathematics team (to be described later) twelve of the best mathematics students chosen from a hundred Freshmen in the University High School were given special drill work during hours after school. This group accomplished a marvelous amount of work and the interest never abated. The experience was a convincing argument that the fast workers would profit greatly in quantity and quality of work done if the classification of students were based on capacity.

FORMULA BASED ON EXISTING CONDITIONS

However, current practice does not predict that this method will be greatly employed in the near future. Consequently, mathematics must do the most that can be done to solve the problem of individual difference as it exists in the ordinary class of varying ability. This formula was stated in our last discussion as: (1) regulating the rate of the presentation of new subject-matter to the ability of the majority of the class regardless of the rate at which those at the extremes, the unusually fast or the very slow workers, are able to progress; this is to be accomplished by the recognition of well-defined minimum and maximum standards on the part of the teacher and pupils; (2) providing extra instruction in supervised study for the slow workers; this instruction may be given either as part of the regular recitation, or in a special period which constitutes a part of the regular program; fundamentally this means teaching the slow worker how to study; (3) providing profitable supplementary activities for the fast workers that will stimulate their enthusiasm for the subject and absorb their energy profitably.

FOUR DEVICES

The first two have been discussed. It remains for us to present specific devices that will constitute the supplementary activities for fast workers. These devices are (*a*) mathematics exhibits, (*b*) mathematics clubs, (*c*) interscholastic mathematics contests, and (*d*) a routinized scheme for assigning supplementary reading-material and problems of greater difficulty.

The mathematics exhibit.—Perhaps the most important of these devices is a mathematics exhibit. This device need not be described here in detail. An extensive description by W. D. Reeve may be found in *School and Society* (August 7, 1915). The following quotation conveys the technique of the exhibit:

> The work was begun in the hope that, as material for the exhibit was collected, subsequent plans and actions would be determined. To this end, bulletin boards about five feet long and four feet wide were placed in each of the mathematics classrooms; and upon these boards the work of the different classes in mathematics was posted from day to day in order that the pupils, and also visitors, might observe what was being done.
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> The papers to be posted were chosen on the basis of neatness, importance of subject-matter, care in development of proofs, unusually good independent work, and special reports. These papers were referred to by the instructors from time to time and discussions leading to improvement in future work were carried on in class. In addition to the work of the pupils, any items of mathematical importance secured by either the teachers or the pupils were posted on these boards. In this way great interest was aroused in these classroom exhibits, and the improvement in the general quality and appearance of all written work, to say nothing of the increase in mathematical power, has been ample reward for all the effort expended in organizing and preparing such exhibits.
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> A friendly spirit of rivalry has always existed among the students, and a desire on the part of all to be well represented, especially in the annual mathematics exhibit, has made the work a pleasure. This same spirit gives rise to a desire for independent work of a research type that is a valuable asset in later mathematical work.
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> Various examples of independent work might be mentioned, such as the drawing of trigonometric curves, illustrated reports of problems in surveying, discussion of geometrical and physical paradoxes, attempts to trisect an angle together with a historical account of such attempts, collection of different methods of proof for the same theorem, and many other items akin to what are often subjects for discussion in high-school mathematics clubs, and in which the pupils are vitally interested.

The rest of the article takes up in detail the organization of exhibit material and the general method of building up the exhibit. A permanent exhibit can be made of great interest to all students. It is particularly beneficial to the excellent students who take great interest in making changes from time to time in the exhibit. The Reeve article shows clearly that every mathematics department can

easily build up a valuable permanent exhibit and use it to stimulate the interest and effort of its students.

The mathematics club.—A second device is a mathematics club whose membership consists of students of excellent ability. Mr. Charles W. Newhall of the Shattuck School, Faribault, Minnesota, is credited with having organized the first secondary-school mathematics club, in 1903. His published programs[1] will be found helpful to those who contemplate the organization of a mathematics club. There are three mathematics clubs in the city of Chicago modeled after the Newhall clubs. The members of the Pythagorean Club at Hyde Park High School are particularly vigorous in their activities. This club ranks high as a student activity in this large public high school. Concerning the function of such a club in its relation to the fast worker, Miss Shoesmith, the faculty adviser of the club, in an article about to be published in *Science and Mathematics*, says:

> In addition to the problem of arousing the dull or the indifferent pupil from his lethargy there is the difficulty of keeping the brighter and more original pupils working at concert pitch, so that while we are attempting to create interest we may not kill that which already existed. While more intensive work on the subject in hand may be assigned for extra credit to these more ambitious pupils and other devices may be used to retain their interest, still it is a lamentable fact that the amount of uniformity necessary in classroom work makes it difficult to bring out the capacity of the individual pupil. Yet we owe it to the excellent student to hold his interest and by opening up to him new fields of thought inspire him to the development of mathematical power of which he may be unconscious. The mathematics club is at least a partial solution of this difficulty and the work of such a club reacts favorably on the attitude toward mathematics throughout the school.
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> When the possibility of organizing a small club was proposed these pupils were very enthusiastic. From the high-school student's point of view it was of course imperative that the club be equipped at the outset with constitution, by-laws, a name, and a pin. Regular program meetings, usually an hour and a half in length, are held every two weeks at the close of the school day. The president, usually a Senior mathematics student, presides at the meeting. The program committee confers with the mathematics faculty in regard to the subject-matter of each program and urges club members to propose problems and topics of special interest which they may wish to hear discussed. At each meeting programs for the next meeting are distributed so that members may

[1] See *School Science and Mathematics*, V, 323; XI, 500.

be informed two weeks in advance of the topics which will be up for consideration. A committee on proofs passes on the validity of original solutions and sees to it that these are written up in permanent form and preserved.

The programs are similar to the published programs of Newhall, consisting of problems of historic interest, mathematical fallacies, mathematical recreations, and constructive problems. During the past year two members actually succeeded in obtaining independent and original solutions of the famous theorem of Appolonius, namely, to construct a circle which shall be tangent to three given circles. In order to insure greater freedom and spontaneity in the regular meetings the club holds two social affairs during the year. At these social affairs all of the entertainment is of a mathematical character, consisting of charades, contest games, etc. Members exhibit great cleverness and ingenuity in devising question contests in which all answers are mathematical terms, in producing art exhibits in which guests are to guess well-known propositions and mathematical terms, and in composing weird tales from mathematical symbols to be translated by guests. The writer has used the "art exhibits" produced by the members of the Hyde Park Club, and their ingenuity has greatly stimulated interest.

The club appears to be as enthusiastic today as it was when organized four years ago. In fact, there seems to be a vigorous demand in the student body for the organization of a second mathematics club. The situation appears to have demonstrated the value of a mathematics club.

Finally, it must be admitted that a great deal of the material considered by a mathematics club is available for introduction into the regular recitation periods. Mathematics is a rich field for recreation material. In *School and Science* (April, 1915) Newhall published a complete classified bibliography of recreation material with which every teacher of mathematics should be thoroughly familiar. Much of the material which stimulates the excellent student is even more valuable to the mediocre student and therefore is fit subject-matter for the regular recitation. The opportunity to train students in habits of harmless enjoyment should certainly never be lost, particularly when the subject-matter conveyed helps to build up the regular course. Incidentally it is

important to note that, contrary to the general opinion, mathematics as taught by specialized teachers does give its students genuine enjoyment. The data upon which this opinion has been based have been chosen at random and represent the result of inefficient teaching. Mathematics, like most secondary-school subjects, requires the mastery of a specialized technique and a command of practical pedagogy. Practical training schools have only recently developed. In addition to this situation school executives have too frequently acted on the assumption that anyone reasonably familiar with the subject-matter of secondary-school mathematics can teach the subject. The general results have not been conducive to the greatest possible enjoyment to students. A constructive criticism should be directed at the methods of teaching and the preparation of teachers, and not at the possibilities of the subject. Nor has it always been clear that the teaching in most other subjects is equally deficient or worse. As a member of a committee engaged in the collection of data from thousands of students aimed to reflect the degree to which mathematics contributes to the genuine enjoyment of secondary students, the writer is convinced that trained teachers of mathematics are eager that their work shall be investigated. The data have not been compiled, but the work has progressed far enough to predict that the information will show that mathematics when taught by well-trained teachers ranks high among the subjects which offer genuine enjoyment to secondary-school students.

Interscholastic mathematics contest.—A third device consists of a mathematical contest between classes of the same institution or between picked teams of different institutions. It is a remarkable fact that teachers of academic subjects have never made use of the interscholastic competitive element which is admitted to be a powerful stimulus to effort in athletic contests. An athletic contest develops enthusiasm and ability to the highest degree on the part of the contestants. The question arises whether such contests are equally effective in a purely academic subject.

The writer attempted to answer this question by devising a contest between teams chosen from first-year mathematics classes of two Chicago schools. The teams represented Hyde Park High

School and the University High School. Faculty representatives of the mathematics departments of the two schools formulated detailed rules to govern the contest. The contest involved all the technique of an athletic event: e.g., a preliminary contest, expert judges, score cards, an analyzed system of grading, announcer, timekeepers, final events open to public, teams, captains, substitutes, "rooting" sections, etc.[1]

The try-outs for the teams absorbed for weeks the interest and efforts of every "A" student in the two schools. At the Hyde Park High School the teachers held review contests between the various Freshmen sections. At the University of Chicago High School practice teachers divided the classes into teams and used a fraction of each period for review contests. Team scores and individual scores were posted from day to day. Interest in mathematics ran high in both schools.

The oral contest was held at the University High School on June 4. The audience filled the school's largest room. Only one baseball game on the school's schedule rivaled the contest in numbers and enthusiasm. This large audience attended in spite of the fact that conditions were very unfavorable on the particular day in question. Other school activities competed for the audience. In particular an elaborate garden party, supper, and dance followed the contest. This social affair seriously tempted a large number to remain away. In spite of this the audience "stuck" even after seeming decisive results had been announced. It was certainly a rare and unusual educational scene of "rooting" sections with pencils and pads eagerly following the progress of the teams. The teams were not excited by the audience. There was very little evidence of nervousness after the first few minutes. The University of Chicago High School team averaged twelve years and three months in age, perhaps as young a first-year mathematics team as could be gathered anywhere. This team stood up well in the contest which was close at all times. Hyde Park High School showed remarkable staying powers, holding itself down to steady, consistent work, even after disheartening announcements. The Hyde

[1] For a description of this technique see article by the writer in *School Science and Mathematics*, December 15, 1914.

Park High School team finally won the contest by a score of 2 to 1. The judges graded independently throughout and submitted score cards showing details that agreed substantially in spite of the fact that the contest was exceedingly close throughout; in fact the scores were actually reversed near the close of the contest. The decision was as decisive as that of a hundred-yard dash.

The mathematics faculties agree that the experiment was of great educational significance. Agreements have been reached whereby the two schools will have an annual mathematics meet in the future extending throughout the four years of high-school mathematics. A valuable cup has been donated and will be the object for competition for several years. Some of the technique has been revised slightly and interest will be accelerated.

The experiment is a definite suggestion for other departments. It seems to be entirely possible to have contests in Latin, history, mathematics, or even general interclass contests with as much enthusiasm and profit as an athletic contest.

No doubt there are objections to the scheme, especially if it is not carefully directed. But in this it is like an athletic contest. Its value will depend, as every school activity does, on the degree and quality of faculty direction.

The writer does not wish to exaggerate its significance. It is simply a unique device which may, upon experimentation, prove to be of assistance in the solution of the problem of individual difference inasmuch as it will be a powerful stimulus to the enthusiasm and effort of the "A" student in mathematics.

A routinized scheme for assigning supplementary work.—The survey referred to in the last discussion revealed the device of assigning supplementary material to fast workers as most common in current practice, but in such a form as to be practically useless to all but the exceptional teacher. Critic teachers in letters generally admitted that they had no special technique of assigning such work. Frequently such work takes the form of "busy work," with little thought given to the value of the material as a means of profitably absorbing the energy and accelerating the interest of the bright student. In order to accomplish these two purposes such material needs to be carefully planned beforehand. In the same manner

that the minimum course needs to be standardized and fixed in mind by teacher and slow workers, so also must the maximum requirement be definitely standardized and held up in definite form before the "A" student. The upper and lower limits of work above the passing-mark need definition. In the University of Chicago High School the amount of credit given varies directly as the quality of work varies from fulfilling the requirements of the minimum course to those of the maximum. Thus a student doing "A" (excellent) work for a year gets 1.25 units credit, while the student who does just enough to fulfil the requirements of the minimum course gets but 0.85 of a credit. There are six grades that vary between these limits.[1] It will be noted that the excellent student gets one and one-half times as much credit for the same course as the slow worker, and he thus receives a strong incentive to work at a high level. This varying credit scheme demands that the instructor have clearly defined the basis for this differentiation. In mathematics this basis certainly ought to be more than a difference of grades on examination. It means an outline of a standard course for all grades of students. The subject-matter should consist of a carefully graded list of problems for each major topic and be in such standardized form that the instructor can assign one group to the excellent students, one to the good section, and one to the nearly passing group, etc. In addition the subject-matter of this routinized scheme may well include reports of historic and recreation material described in another section. Miss Beulah Shoesmith, of the Hyde Park High School, employs this scheme far more successfully than any other teacher whose work the writer has seen. She has her own syllabus of geometry problems carefully graded as to difficulty, and at any stage of the course she is able to assign lists of problems of varying difficulty to groups of students of varying abilities. This routinized scheme of supplementary assignment of library work in recreation and historical material or graded lists of problems "on tap" for every topic throughout four years of mathematics is meeting the problem of individual differences in a practical way. But the difficulty lies in the fact that such material is not

[1] For a detailed description of this scheme of varying credit read the statement of Principal Franklin W. Johnson in this number of the *School Review*.

in available form for all teachers. Few teachers have the time, the ability, and the library facilities to organize such material.

THE BIG NEED OF SECONDARY-SCHOOL MATHEMATICS

But this need for organization of supplementary material is subordinate to the big need in mathematics, which is the collecting of devices used in the mechanics of the schoolroom and the best methods of teaching special topics and the organization and publication of this material in available form. This material must be collected from the various schoolroom practices. The publication of a manual of methods as technique, written with this experience as a basis, would serve as a clearing-house for methods and would revolutionize the teaching of mathematics in secondary schools. It is greatly to be desired that some institution interested in the training of secondary-mathematics teachers or some large city school system train at least one efficiency expert in secondary mathematics. But the detailed discussion of this vital need falls outside the limits of this article.

Finally, it is important to realize that the solution of the problem of individual differences as it applies to both slow and fast workers is in an elementary stage. Few problems relating to the secondary school offer such opportunity for improvement in efficiency. The solution must come directly from the schoolroom and at the present time this is the problem that challenges the best efforts of all secondary-school men.

TRAINING CITY BOYS FOR COUNTRY LIFE

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The Gardena Agricultural High School belongs to the Los Angeles city system. It lies outside the city limits proper, in a district annexed to the city for school purposes only. It is in the heart of the most important poultry district of southern California. Dairying, fruit-growing, and the production of alfalfa and barley are carried on in the immediate vicinity of the school, while four miles to the east sugar-beet growing is the dominant industry. The school is therefore so located that it can and does keep its students in touch with diversified farming operations. But it is close to the city of Los Angeles. Electric cars, passing the doors of the school every half-hour, reach the center of the city in thirty-five minutes. All these conditions have made it possible for the Gardena Agricultural High School to perform a function more or less unique among schools of this type—the training of city boys for country life.

It may be of interest to note in passing that the school is an intermediate school as well as a high school, and a cosmopolitan school as well as an agricultural one. More than two hundred students are enrolled in grades nine to twelve. Of these, sixty boys are enrolled in the course in agriculture. Of the sixty, but fourteen are boys who have been reared in the country. In addition to these boys, others not in the agricultural course are electing agricultural subjects.

Agricultural instruction has been offered in the school since 1908. It was introduced at a time when the school had a total enrolment of only sixty pupils, and but one instructor was needed for both agriculture and the biological sciences. In 1910 the Board of Education purchased a ten-acre tract adjoining the school and utilized it as a school farm. A farmer was employed and placed in charge.

In 1911 it was found necessary to employ a second teacher of agriculture. At the present time, in its corps of twenty teachers, the school employs two teachers of agriculture, one teacher of biological sciences, and a fourth man, certificated as a teacher of farm practice, who has charge of the school farm and the dormitory.

The school farm and the grounds about the school buildings are very necessary tools of agricultural instruction. While the Massachusetts home-project idea is doubtless the ideal system for a school whose pupils are drawn for the most part from farm homes, the special circumstances here largely preclude the use of home projects. The problem of teaching the art of farming through experience must be solved here by utilizing as effectively as possible the land owned by the school, since the city boys who come to us have no other opportunity of securing practical experience.

The school farm includes about ten acres. The grounds around the school have until this year included about four acres more; and a tract of four and one-half acres has just been added, part of which will be used for agricultural purposes. Since irrigation is necessary in California, the school owns a share in a pumping plant, and water is conveyed to all parts of the land by a cement pipe line. On a part of the farm students have planted and are caring for a young orchard of several varieties of fruit trees, a vineyard, an alfalfa field, etc. The farm is at present stocked with five head of cattle, all registered stock, an excellent team of horses, about two hundred hens, and half a dozen registered pigs. The farm buildings comprise a good-sized barn, a dairy building, a garage, a poultry-house, and a wagon shed, in addition to the dwelling-house. All these buildings except the house were erected by the students in the carpentry classes; two carpenters, however, worked with the students in the construction of the barn.

The work of the farm is performed altogether by students. Part is performed by students working in regular class periods, and the rest outside of class hours by students who live at the farmhouse, which was last year converted into a dormitory. The most effective utilization of the school farm for purposes of instruction has been and still is the subject of some experiment. During one year, for example, individual plots were assigned to the students

in certain classes, who were expected to conduct on them independent farming operations in miniature. A system of cost-account keeping was devised by the instructor in charge, and was used by each student. Theoretically, the plan was attractive. Practically, the results were disappointing, for reasons which it is unnecessary to detail here, and at the close of the year the plan was abandoned. The work of the farm is now conducted on the group system, and this arrangement, together with the dormitory system now in operation, is proving very satisfactory.

The dormitory system was initiated by the man who was at that time head of the department of agriculture, as a means of meeting the needs of city boys who are without farm experience. It has been in effect for a year and has proved itself an admirable instrument for the purpose intended. During the summer of 1914 the farmhouse was so remodeled as to provide three additional sleeping-rooms. The farmer was released, the head of the agricultural department himself moving to the farmhouse. At the opening of school in September, four city boys, students in their twelfth year, were chosen to occupy the dormitory. The school gives them room and board, and in return they do some of the work of the farm before and after the regular school hours. Their work consists largely of "chores," caring for the animals, milking, caring for the milk, keeping the farm premises neat, and doing odds and ends of work that the day students in the agricultural courses do not perform. These boys are at work in the morning at 5:30, and finish at dusk. The experiences they get, familiar enough to every farm-bred boy, are to them entirely novel. The plan is an ideal one from the standpoint of vocational guidance; its advantages from other standpoints are equally apparent. By changing boys every three months, twelve boys are enabled to share in this sort of experience every year. It is planned to increase the dormitory facilities in the near future, so that at least six boys at a time may occupy quarters there.

The classrooms and laboratories of the school are ample for present needs. There is a laboratory for chemistry and physics, and a biology laboratory; a large shop building of brick construction, equipped with wood-working machinery, benches, and tools;

a forge-shop, equipped with twelve hand-blown forges of the best type (Buffalo No. 666), a hand-power drill press, and a motor-driven grinder. The superintendent of schools and the Board of Education have been generous in their support of the school, and ample equipment has been available at all times.

The course of study and the schedule of recitations have been organized with due regard to the fact that the majority of the boys in the agricultural course are city boys without farm experience. In the ninth year, plant propagation and farm-building construction are the agricultural courses offered. The former comprises methods of propagating ornamental and useful plants; the control of plant diseases and insect pests; elementary landscape gardening; elementary irrigation practice; greenhouse, lathhouse, hotbed, and cold-frame work, and other related matters. The classes in plant propagation take complete charge of all the ornamental plants on the school premises, and they grow the vegetables which supply the school cafeteria. They also propagate some nursery stock for sale.

The course in farm-building construction includes carpentry, cement work, pipe-fitting, and elementary architectural drawing. The small buildings about the school and farm are all erected by these classes; the cement work about the school premises is done by them; and they are called upon for such miscellaneous work as the repair of buildings, the construction of scenery for the auditorium stage, etc.

The current practice in most schools is to offer such work as this in double-period courses, and to offer them daily. By the arrangement in effect at Gardena, the work in plant propagation extends without interruption throughout a school day. On the following day the same class spends a full half-day in the work of the course in farm-building constructing. This departure from the ordinary arrangement has been found to result in an economy of time, an increased amount of work accomplished during the year, a greater development of skill on the part of the pupils, and increased satisfaction in doing the work on the part of both instructors and pupils The same plan is being followed with the agricultural subjects of the tenth year (dairying and poultry being alternated with farm

blacksmithing), and in the eleventh year where the same group of students take horticulture and agronomy on alternate days.

The course of study in agriculture in this high school follows:

NINTH YEAR	ELEVENTH YEAR
English	American History and Civics
Plant Propagation	Agronomy
Farm-Building Construction	Horticulture
Botany	Agricultural Physics
Farm Arithmetic or Algebra	
TENTH YEAR	**TWELFTH YEAR**
English	Animal Husbandry
Poultry and Dairying	Principles of Breeding
Farm Blacksmithing	Rural Law and Economics
Zoölogy	Chemistry

This course is subject to modification for those boys who need to meet the entrance requirements of particular colleges.

The course in household economics offered by the school is in a sense a complement of the course in agriculture. In this department the girls serve the school as loyally and enthusiastically as do the boys in the agricultural course. The cooking for the school cafeteria, the materials for which are largely produced on the farm by the boys, is all done by the girls of the cooking classes. The food thus prepared is sold at a nominal cost to the students.

The school has not been in operation long enough to determine the vocational destinies of the graduates of its agricultural course. Some of them are at work on ranches; the majority, it is safe to say, are in agricultural colleges, or are recent graduates from such colleges. The school has established itself, has proved its worth, and is meeting with a growth in numbers, both in the agricultural course and in other courses, which is very gratifying to those who are interested in its welfare.

AN EXPERIMENT IN CO-OPERATION IN ENGLISH

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In every high school the regular work in English is organized on a three-year or a four-year basis. As a rule the colleges and universities require for entrance three years of work in literature and composition. Small high schools frequently give only three years of this work. The J. Sterling Morton High School has four years of English in its curriculum. The pupils who are preparing for college and are pressed for time by reason of the requirements for college entrance are exempted from taking the fourth year of our English course. Because of this the fourth year of the work in English is planned to be an equivalent of the first year of the English work in college.

With us, besides the regular English work, there are three supplementary types of work which are followed outside of the course in English. This supplementary work is designed to bring the English throughout the school under close surveillance. In the first place, each teacher occasionally becomes a teacher of English in conducting an exercise which we call "subject spelling." The subject-matter of this exercise for each class, viz., algebra, American history, general science, English, etc., comes from two sources: first, words found misspelled by the teacher of each subject in examining the written papers submitted by his pupils; and, secondly, words which the teacher adds to the list which are technical or peculiar to the subject and which should be in the vocabulary of a pupil who studies that subject. Every teacher in the high school, including the sewing, physical training, cooking, and drawing teachers, at regular intervals conducts this exercise, each in his own class, which is called "special spelling." A portion, perhaps ten minutes, of the regular recitation is devoted to this work. Thus every teacher in the school is by this process endeavoring to

enlarge the vocabulary of his pupils. The procedure in this exercise is about as follows: Pupils are required to spell, define, syllabicate, and give the salient points of etymology, give the part of speech, and, most of all, use the word in a sentence that shows by its content that the pupil knows the meaning of the word. This exercise is conducted in a purely informal manner. At the end of each month the teachers report to the office the grades of the pupils for this work, and the mean of the pupil's marks in all these exercises is set down under the title of "Subject Spelling" in the monthly report to the parent.

In another way every teacher in the school becomes for fifteen minutes each day a teacher of English. Every pupil of the school is required to attend what we call special spelling classes. These are really classes for the study of words. In organizing these classes the pupils are divided into four groups corresponding to the four years of high school. These groups are subdivided into sections so that each teacher meets about fifteen pupils or less. There is a special list of words for each group, graded to each of the four years of high school. The highest group bases its study almost entirely upon an unabridged dictionary and Crabb's *English Synonyms*. With a special list of words for each group, all the sections in each of these groups are studying the same words the same day. Thus among the members of each of the four classes there is a community of interest in the words for the pupils to use among themselves. These words have been collected by the teachers in the different departments of the high school. They are words that the pupils have attempted to use in their oral or written work and have used incorrectly. Every day in these classes, the lesson assignment consists of two words. In preparation the pupils are required to consult an unabridged dictionary. Besides this, such books as Weekely, *The Romance of Words;* Greenough and Kittridge, *Words and Their Ways in English Speech;* Fernald, *English Synonyms, Antonyms, and Prepositions;* Roget, *Thesaurus of English Words and Phrases* are accessible for consultation by the pupil. Here again as in the subject spelling work, the pupils are required to spell, syllabify, define, give the etymology and the part of speech, and use the words in sentences. The recitations are almost

entirely oral and consist of an informal discussion of the shades of meaning of the words. Then the pupils are asked to invent sentences that show by their content that they know the meaning of the word. These sentences are discussed by the members of the class. Thus it is by this exercise that every teacher in the school is a teacher of English for fifteen minutes each day.

The third plan whereby we essay to make every teacher a teacher of English is perhaps rather more difficult to administer, but if the teachers are willing to co-operate, as they are in this school, satisfactory results can be obtained. Each teacher in departments other than English reports at the end of each month a grade in English for each pupil in his classes. Teachers in certain departments, of course, must be exempt from this plan either because they have no oral recitation, as for example the teachers in physical training, or because they do not hear recitations in English, as for instance the teachers in modern languages; but the teachers in nearly all of the other departments report each month, along with the grades for their own subjects, a separate grade in English. This brings to the notice of the teacher as well as of the pupil that the English in every class must be given special attention. In order that the English grades may have some definite basis, a series of directions are drawn up for the guidance of the teachers of departments other than English. There is one general set of directions as follows:

FIRST YEAR, FIRST SEMESTER

The following general requirements shall be enforced in all departments:

Oral:

1. Not more than 25 per cent of the recitation shall be in incomplete sentences. These recitations may be given while the pupil is seated.

2. The careful enunciation of syllables; particularly of final syllables, shall be insisted upon.

3. If the recitation gives promise of continuing for several sentences, the pupil shall rise and stand erect and free.

4. Sentences shall not be introduced with such words as "why," "well," "ah," etc.

5. The use of slang shall not be permitted.

Written:

1. Balanced margins shall be maintained both at top, bottom, and sides of the page on which the written composition is placed.

2. Paragraphs shall be indented.
3. Sentences shall begin with capitals.
4. Sentences shall close with periods.
5. The use of incomplete sentences shall not be allowed.
6. Written work shall be legible.
7. A liberal space shall intervene between consecutive lines and consecutive words.
8. The use of commas in series shall be insisted upon.
9. The use of long, straggling compound sentences shall not be permitted.
10. The use of slang shall not be permitted.

FIRST YEAR, SECOND SEMESTER

Oral:

6. The discriminating use of words peculiar to this particular department shall be inculcated.
7. Opening sentences of paragraphs shall contain a topic statement.

Written:

11. Opening sentences of paragraphs shall contain a topic statement.
12. Single paragraphs, especially those of considerable length, and the closing paragraph of related paragraphs shall be concluded with a summarizing statement.

SECOND YEAR, FIRST SEMESTER

Oral:

8. If the recitation is of the nature of a report, or lengthens to a paragraph, the pupil shall stand in front of the room before the class.
9. Errors in grammar shall not be permitted.
10. Recitations shall be audible to all.
11. In talking on a topic, the pupils shall look their classmates in the eyes and assume a free and easy position.

Written:

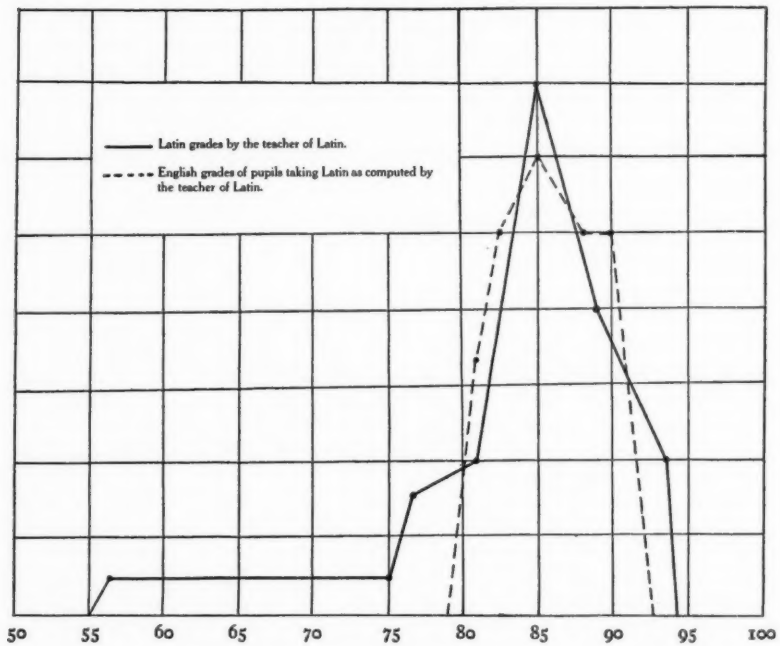
13. A dependent clause standing first in the sentence shall be followed by a comma.
14. In a compound sentence independent clauses not closely related shall be separated by commas.
15. Parenthetical material shall be set off by commas.

The grades that the teachers other than English teachers hand in each month are averaged at the end of the semester, and this average is reckoned as one-fourth of the English composition grade for the semester. These grades are called English exponent grades. Mr. Walter S. Spelman, an instructor in the English department, in a report on this experiment, wrote in part as follows:

The English faculty were compelled to keep in view two considerations: the fundamental requirements of correct English, and the burden of the

enforcement on their fellow-teachers. The former demanded a large number of rules, the latter, few and specific ones; and the former was sacrificed. Again, with the same object in view, the English faculty have made a detailed, comprehensive, and consistent outline of their own work which brings out in one month what is called for by the direction sheet of the next month; in fact, they have even made out a list of pupils and their respective English teachers, which enables any instructor to call the English teacher to account, rather than

CHART I

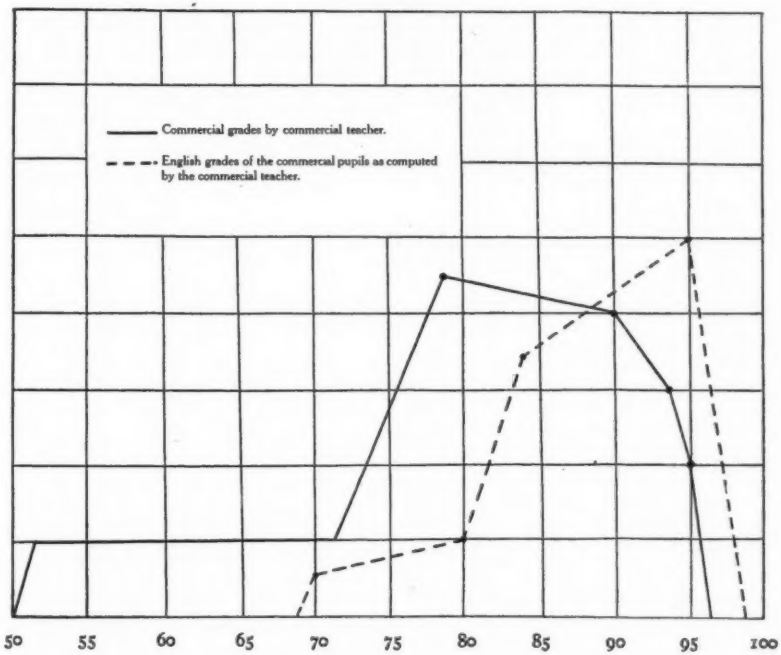


the student, for the latter's poor work in English. Moreover, each student is required to keep a record of all directions, usually in a notebook, and these are dictated or given out, not by the English teacher, but by the various instructors. In short, the English duty of a physiology teacher, for instance, is to oversee, inspect, and criticize the English expression, while he is carrying on his own work. It does not demand re-reading of written material, nor red ink, nor consultation. It does, however, demand that there be given monthly in each subject a separate English grade, the "exponent grade" as it is called with us, because it is notated as an exponent to the subject grade. To this extent

the experiment in faculty co-operation demands extra work on the part of the instructor in the other departments. Thus far, however, no complaints have been made; in fact, the instructors became keenly interested and made known their advice, needs, and willingness to co-operate in the system.

The plan, in addition to its primary enforcement by instructors, has a secondary significance in its relation to the grades of the students. The semester grade of the student in English composition is now calculated by

CHART II



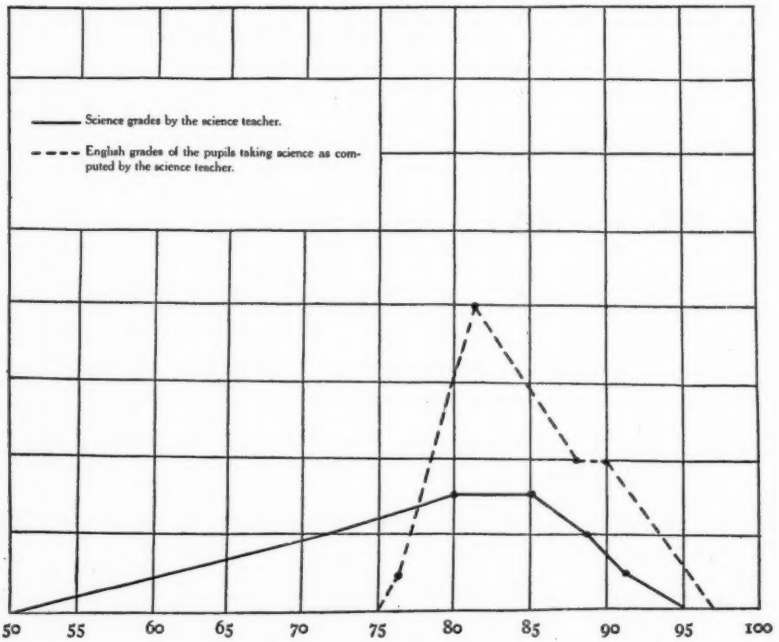
valuing the mean average of the several exponent grades in all subjects as 25 per cent, and the final grade of the English instructor in composition as 75 per cent, on a basis of 100. This means not only that the student is obliged to practice under varying conditions, and throughout the whole school day, the fundamentals of good English, but also that such practice bears a direct relation to his English grade. To sum up: it seems that the English teacher "has him."

In connection with the final grades it is of interest to both teachers and students to perceive the exact mathematical relation between the subject grades and the English exponent grades and the relation between the English

composition final grades estimated without the exponents and these final grades estimated with the exponents. The graphs given below cover the work of an entire semester, and are made with the abscissas expressing the grade percentage, and the ordinates the number of pupils. A brief study of them will prove clearly the following relations:

First (graphs Nos. 1, 2, and 3), that the instructors in subjects other than English give English grades, the exponent grades, that both average higher

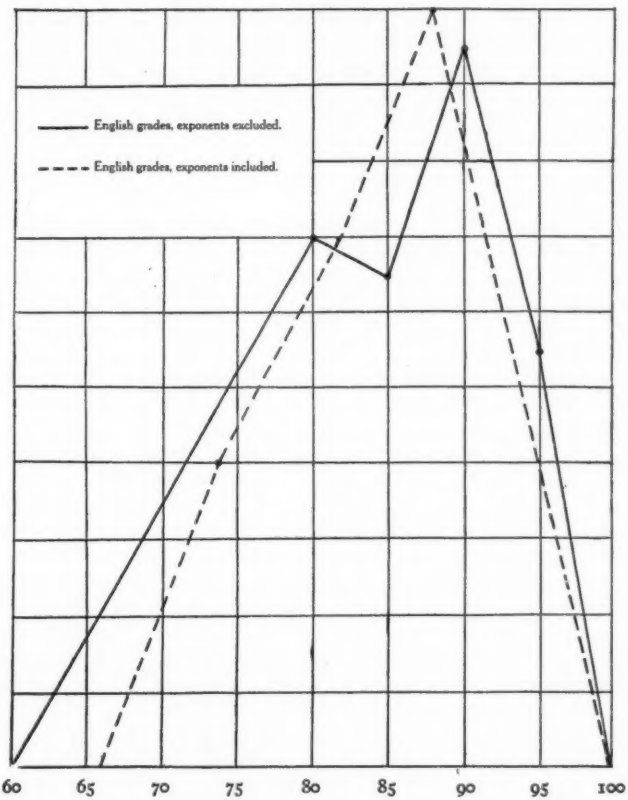
CHART III



than their subject grades, and also have a more limited range. In graph No. 1 the exponent grade includes a greater area than the subject grade line. It extends from 79 to 92 while the subject grade line extends from 56 to 94. Such a situation indicates that they "are spending other people's money more freely than their own." But it is not abnormal. A Latin teacher is not an English teacher, nor does the plan require him to be one. With the conditions reversed a similar result would follow. The graphs show, however, the necessity for care on the part of the instructors in considering the pupils and their English.

Secondly, it is seen (graph No. 4) that the value of the final English composition grade of the pupil is, *on the whole*, increased by including the exponent grade. But this increase shows clearly the influence of that peculiarity, the narrow range of the exponent grades. Those pupils with poor or very poor

CHART IV



English grades are benefited somewhat; while those pupils with excellent grades, fewer in number, however, than the preceding, suffer a penalty. It is a warning to instructors, the English instructor as well as the others, for a more careful and more systematic estimation of grades. It means the co-operation of the entire faculty, and all the advantages such co-operation ought to bring to teacher and pupil.

In addition to the general set of directions shown above, each week a special direction is sent out and the teachers in the departments other than English report to the English teachers weekly upon these special directions. This report is on a 6×8 card upon which are the name of the class, the name of the teacher, and the names of the pupils. At columns to the right of the pupils' names are blank spaces and here is indicated whether, during the week, the teacher finds each pupil using incorrectly or correctly the direction or suggestion fastened at the top of the card. Some of these directions are here given:

1. Insist upon the elimination of "and," "and-ah," "why," "why-ah," "well," etc., as connectives.
2. Insist upon the concord of subject and predicate, especially in the case of the verbs "be," "do," "go," and "come."
3. Note that "each," "every," "someone," "anyone," and "every one" agree with singular verbs and pronouns.
4. Do not allow double nominatives; e.g., "*The boy, he* went home."
5. Guard against "kind of a," "sort of a," when meaning "somewhat."
6. Avoid the use of "those kind" and "these kind."
7. Insist that the subject of the sentence be expressed, avoiding the incomplete structure.
8. See that pronouns have their antecedents expressed.
9. Do not allow "hadn't ought."
10. Insist on the proper use of "awful."
11. Do not allow "not hardly."
12. Insist on the proper use of "care" and "way."
13. Insist on the correct use of "off" and "from." Discourage the use of "off of."
14. Do not allow "the reason is because."
15. Insist on the proper use of the relative "who" and "which" for "and he," "and it."
16. Do not allow "this here."
17. Do not allow "that is when" or "that is where."

The teachers in the other departments also report to the English department errors in English that occur in their classes and these are used in the English classes at the proper place in the composition course. Thus, in various ways there is a co-operation to bring the English department in the school to a higher level.

THE REPORT OF THE JOINT COMMITTEE ON GRAMMATICAL NOMENCLATURE FROM THE POINT OF VIEW OF THE TEACHING OF FRENCH

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It is nothing more than human nature to be long-suffering under abuses of long standing, but to become quickly intolerant when any promised improvement fails to bring the expected—and needed—relief. For centuries the teaching of French grammar has been shackled and handicapped by grammatical traditions and considerations alien to French itself; one has blinked, as it were, the essential facts of the French language in order to make textbooks and the process of teaching conform to certain preconceived arrangements that have their justification in the teaching of the classical languages but have none whatever in the teaching of modern French. The inevitable consequences are that the French grammars in use in schools and colleges only too often furnish an inefficient and highly uneconomical presentation of the facts of the language under consideration, and, more deplorable yet, they frequently ignore the fundamental and vital principles that make the French language what it actually is today. Certainly, in this age of "declaration of rights," it does not seem untimely to make a stand for the right to face, even in the French classroom, the facts of the French language fairly and squarely as, to the best of our knowledge, they have been established by modern scholarship, and to make *truthful*, not merely *expedient*, statements concerning these facts. It is a foregone conclusion that the time is coming when this teaching attitude will not only be tolerated in the French classroom but actually demanded by the educational body politic: how else can the study of French ever be made to attain to anything like the "educational value" that the study of Latin has possessed for centuries, though the former is supplanting the latter more and more in the school curriculum of today?

Rome was, indeed, not built in a day, and even the most conscientious and aspiring teacher of French may have to rest content with helping to loosen gradually the time-honored shackles, feeling that something is achieved every time one or the other rattles to the ground. It seems hard, however, either to preach or to practice the same resignation when already fairly loosened shackles are once more firmly riveted, as seems to have been done in some cases by the Joint Committee on Grammatical Nomenclature, especially when the preface to the Report seemed to promise such welcome relief! It is against this riveting that, for my part, I should like to enter a respectful protest, at least for the following cases.

In the preface (p. vii) the following statements are made: "A given term should describe as exactly as possible the phenomenon to which it is assigned," and, farther on, "A term which is selected as the most exact characterization of a given phenomenon should be employed for every phenomenon identical in force." How is it possible heartily to indorse these statements and then to rest content with the terms "conjunctive and disjunctive" retained on p. 2?

Do the terms "conjunctive" and "disjunctive" really *exactly* describe the phenomenon of differentiation between *me* and *moi*, *il* and *lui* in French? And is not the differentiation between *mon* and (*le*) *mien* a phenomenon "identical in force," having a right therefore to the same name? Undoubtedly position is an important factor in French in the choice of the form of the personal pronoun (scarcely so much so in Italian, for which the terms "conjunctive" and "disjunctive" are even more glaringly misleading), but even today it remains only a secondary factor, the primary factor being still what it was in the beginning—stress. A lengthy discussion of this assertion would be out of place here. Two examples, one happily furnished by a recent number of the *Revue des Deux Mondes* (15 Juillet 1914, p. 294), may suffice: *Il faudrait peut-être d'abord que lui songeât à moi.* The other is taken from Girault-Duvivier, I, p. 354: *Mes frères et mon cousin m'ont secouru, eux m'ont relevé, et lui m'a pansé.* In both examples the supposedly "disjunctive *lui* and *eux* are just as much "joined to the verb" as the more ordinary *il* and *ils* could ever be when placed in the same position, the real difference being obviously one of *stress*. The

terms "conjunctive" and "disjunctive" fail therefore to give the requisite "exact characterization" of the phenomenon of differentiation between personal pronouns; they are also open to the serious charge that they cannot be extended to the other phenomenon "identical in force," the differentiation of those words which are sometimes used with a noun and sometimes instead of a noun, for if the term "disjunctive" were applicable to words that stand instead of a noun, then all personal pronouns would *ipso facto* become disjunctive.

Now terms which do describe "as exactly as possible" the phenomenon of differentiation between originally identical words in French and other Romance languages, and which can be employed for "every phenomenon in the language identical in force," exist: they are not only commonly used in all more advanced study of Romance languages, but they have also found their way into elementary French grammars. These terms are "stressed" and "unstressed": "stressed" and "unstressed" personal pronouns, "stressed" and "unstressed" possessives, demonstratives, and interrogatives. "Tonic" and "atonic" would be equally good, and it is hard to understand why the committee should have passed up such excellent terms in favor of the inexact and insufficient "conjunctive" and "disjunctive."

The importance of "stress" in the inflection of verbs has within the last few years become *un fait acquis* for the better taught French classes, thanks in great measure, undoubtedly, to the recommendations of the Committee of Twelve. It would be no startling innovation to extend the explanation of the phenomenon of stress from the "syllable within the word" to the "word within the group," even in the most elementary teaching of grammar. It is so simple that any child can grasp it when clearly presented. The great majority of morphological peculiarities in French are due to the law or principle of the influence of stress, and can be accounted for by stating it; therefore it makes for economy and thoroughness in the acquisition of the morphological facts of the language as well as of a correct pronunciation, to acquaint the student of French from the very beginning with this surpassingly important peculiarity of the French language.

It is feasible, and highly economical of time and of effort, to give the students a survey of the field of French morphology, disregarding "grammatical categories" altogether at the first presentation, and taking as a guiding thread through the labyrinth the influence of stress, (1) on the spelling of French; (2) on the inflection of feminine words; (3) on the inflection of verbs; (4) on the differentiation of orginally identical words within the stress-group. The continual application of the same principle (e.g., the feminine *fière*, or the verb *acquière*, or any other word of the same type, require the grave accent on the tonic *e because we may not have a silent "e" in the stressed syllable of a word, and we indicate that "e" is not silent by placing a grave accent on it or doubling the consonant after it, etc.*) instead of the perfunctory statement of numberless, apparently disconnected rules, "rubs it in" as no other process of instruction can do; moreover, when later the study of the grammatical categories is taken up in detail, the better students bring to it a growing *Sprachgefühl* that is conducive to excellent results. The memory is thus relieved of much burdensome detail, and is left much fresher to cope successfully with that side of language-work which it alone can accomplish, e.g., the acquisition of a vocabulary, and of "idioms."

The morphological effects of stress are in French no less in evidence than the morphological effects of declension are in Latin or in German: they are *facts of the language* that have a claim to recognition, not only because they actually exist, but also because this knowledge is helpful even in the most elementary stages of the study of French grammar. Undoubtedly one of the reasons why so many grammars ignore it completely, and others only recognize stress sparingly, chiefly in notes, is because their prototypes, the classical grammars, had to deal with no similar phenomenon, and consequently give no clue to its treatment. It is so much more important then to find at last for this essentially French phenomenon (even Italian is not affected to such a degree by stress-development) a term that "describes it as exactly as possible," and this the terms "conjunctive" and "disjunctive" entirely fail to do.

The next shackle whose riveting I should like to deplore is the name "past descriptive" given to the imperfect. My objections

to it can be expressed briefly in the words of the Report itself (p. 16), "Whatever principle of naming is adopted should be consistently maintained," and it seems perfectly obvious that the principle of naming that led to the felicitous choice of the names "present perfect," "past future," "past perfect," and "past absolute" (to my mind an admirable principle of naming) has for some unaccountable reason been abandoned in the case of the former "imperfect," with the result that the name "past descriptive" emphasizes a secondary and unessential characteristic, which is by no means always present in the tense itself, and which, moreover, under certain conditions this tense is bound to share with other tenses. The principle of naming that has determined the choice of the names "past future" and "past perfect" seems to suggest insistently the name "past present"; what objection can there be to its adoption?

It is probably owing to the facts of the French language itself that the classification of conditional sentences given in the Report (pp. 7, 24) scarcely seem to fit the case in French. In the first place it would be quite unpedagogic to distinguish between "present" and "future" conditions, the language, for good reasons, having only one form for both (this statement is not meant to apply to "indicative" conditions), and there is no good and sufficient reason why we should complicate matters in elementary teaching by pulling uselessly apart what the language itself has fused into one. In French it is the sense of the sentence or the context, not the form, that decides whether a condition is present, future, or both simultaneously. A classification based on time would have to concern itself with the content, not with the form of the sentence. The three types of condition which call for recognition, and for which good, distinctive names would be highly acceptable are the following:

(*A*) Conditions taking the indicative in both clauses.

(*B*) Conditions taking (*a*) the imperfect in the condition-clause and the conditional in the conclusion-clause, and (*b*) the pluperfect indicative or subjunctive in the condition-clause, and the past conditional or pluperfect subjunctive in the conclusion-clause.

(*C*) Conditions taking the conditional in both clauses (negligible in elementary teaching).

What is the difference between types (*A*) and (*B*)? Certainly not that the first are *neutral* and the second *contrary to fact*, for only (*B*) (*b*) conditions are necessarily contrary to fact; therefore the distinction between *neutral*, which would include all (*A*) and *some* (*B*) (*a*) conditions, and *contrary to fact conditions*, which would include all (*B*) (*b*) and *some* (*B*) (*a*) conditions, would be a distinction that would not properly distinguish, for it would group together what the students must precisely learn to keep apart, indicative and non-indicative conditions, and make a distinction which the language itself fails to recognize between contrary-to-fact present and not-contrary-to-fact present and future conditions, i.e., equal all (*B*) (*a*) conditions.

Incidentally it may be remarked that even from the English point of view the classification of conditions given in the Report seems incomplete: it leaves altogether out of consideration conditions of the type, "if he should be doing this, he would be in the right," "if he should have done this, he would have been in the right." The content makes these conditions sound rather awkward, but we constantly use and hear conditions of this type: "if he should be sick, it would be a pity."[1] Now there is just as much difference between a present condition of this type, and a present condition of the type, "If he is doing this, he is in the right," as between the future (more vivid), "If he shall do this (or, does this), he will be in the right," and the future (less vivid), "If he should do this, he would be in the right"; moreover, it is just exactly the same kind of difference, and if the terms "more and less vivid" describe the difference between the two future conditions as exactly as possible—and they undoubtedly do—it follows that they also describe it "as exactly as possible" for the present conditions. In English, then, it appears necessary to distinguish not between *two* types of present (and past) conditions but between *three:* contrary-

[1] Past conditions of this type are, it appears, somewhat infrequent. The following is taken from Brinkmann, *Syntax des Französischen und Englischen*, II, p. 622, "Thou wouldst oppose thy father then, should he have otherwise determined with thy person?"—Coleridge, *Piccol.* A present condition of this type: "If one of these (homebred and genuine sons of the soil) should be a little uncouth in speech, and apt to utter impertinent truth, he confesses that he is a real John Bull, and always speaks his mind."—Irving, *Sketch Book*, p. 28.

to-fact conditions, less vivid conditions, and "neutral" conditions. The fact that the term "neutral" cannot be used for future conditions, and that the distinction between less vivid and neutral present conditions is identical with the distinction between more and less vivid future conditions, would seem to call for the substitution of *more vivid* for *neutral* even with reference to present (and past) conditions.

The distinction that the French language makes between indicative conditions and non-indicative conditions is described, it seems to me, *as exactly as possible* for elementary teaching by the two terms "more" and "less vivid." We could then classify conditions in French as,

(*A*) More Vivid Conditions

Any two tenses of the indicative that can logically be used together (with the required substitution of the present tense for the future in the condition-clause).

(*B*) Less Vivid Conditions

Condition-clause	Conclusion-clause
(*a*) Present and Future conditions (Present conditions *generally* contrary to fact)	
Imperfect Indicative	Present Conditional
(*b*) Past Conditions (*always* contrary to fact)	
Pluperfect Indicative or Subjunctive	Past Conditional or Pluperfect Subjunctive

The "concessive" conditions, which take the conditional in both clauses, are not usually considered in elementary work; for more advanced work, they would necessitate an addition to, but no radical change in, this scheme.

A full discussion of the terms applied to the different mood-ideas expressed by the French subjunctive would imply a discussion of the nature of the mood itself, which would obviously be out of place here. But even without attempting to go very deep below the surface, there is one omission that must needs be mentioned. One of the chief functions of the subjunctive in modern French is to *indicate that the assertion is not made as a fact, but as something conceived in the mind of the speaker*, to express a thought, an idea. Indeed, Mr. Armstrong, from whom the foregoing definition is

quoted (cf. *Syntax of the French Verb*, p. 49) and others, whose opinion is equally worthy of consideration, hold this to be the mood-force *par excellence* that underlies all the uses of the French subjunctive. I cannot myself take this extreme position, as I "feel" too strongly that subjunctives of feeling and opinion are, both in Italian and French, used deliberately with the full consciousness of expressing a fact and not a thought, and how could it be otherwise with the characteristic Romance "sense of reality"? Be that as it may, there is no doubt that the French language uses the subjunctive to discriminate between fact and mere thought in a way unknown to Latin. This mood-idea is of the greatest importance even in the most elementary teaching, for once it is grasped the student holds in his hand the thread that will guide him safely through a labyrinth of apparently disconnected rules. It seems somewhat surprising that the Report, which has concerned itself with such secondary details as "*que*-clause of added condition," and "introductory *que*-clause," should have left nameless one of the if not *the* leading mood-idea of the French subjunctive, especially as several German grammars of the French language take cognizance of this mood-use, and name it. I have used for a number of years the designation "subjunctive of ideal statement" (which had been suggested by Hale-Buck's "Subjunctive of Ideal Certainty) and found it satisfactory for teaching, since students readily grasp its meaning when opposed to the term "statement of fact," and it is more comprehensive than the German term *irrealis*. Whether this name prove generally acceptable or not, this prepotent mood-force which dominates persistently if not always quite consistently, the choice of mood in French, seems entitled to formal recognition even in the American classroom by the bestowal of some name.

THE SCHOOL PHASES OF VOCATIONAL GUIDANCE

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The need for such guidance as will enable youthful workers to adjust themselves to the complex and rapidly changing economic conditions of our times is clearly recognized by all thoughtful and interested people. It is not quite so clear, however, where the duty of the school begins or terminates in assisting in such adjustment.

Medical inspection, as it has been developed in public-school systems during the last decade, offers an excellent parallel. When reasonably hygienic conditions have been provided and when the school nurse or the school physician has diagnosed the individual case and has referred it to the private doctor or to the free dispensary for treatment, the school is considered by many to have done its full duty. In the same way the public school may be considered as only partially responsible for the necessary vocational guidance, the contributing agencies being the free public employment office or the private vocation bureau.

Similarly there should be a logical division of responsibility on an age basis, the adult of thirty presenting a problem which the public school, or at least the public secondary school, need not consider. The school may properly be required to interest itself in the earlier vocational experiences of the youth of the community without committing itself to the duty of supervising occupational adjustments throughout the vicissitudes of a long and constantly changing economic life. In other words, providing for a "start in life" may become a school function without requiring the public school to exercise a lifelong "guidance."

In developing a program for vocational guidance, therefore, we must distinguish clearly between the immediate and the ultimate purpose, and must realize that the former is the more pertinent and that the "next step" is the most important consideration. A common criticism of our school system in general has been that its aims

are too remote, both in time and in place, to fix the attention and hold the interest of most of the pupils. To follow such a precedent in inaugurating a system of vocational guidance will be fatal to the success of the movement.

Since vocational guidance has to do with "the start in life," and since it necessitates an articulation between the school and occupations, the time at which it may be exercised most intelligently is that at which the pupil leaves school. Vocational guidance, therefore, as a school function, may be classified roughly to correspond to three major groups of pupils.

First, there is the group which leaves school at the termination of the compulsory age limit with about an eighth-grade training, perhaps a little more or a little less. While individual differences in the capacities, ambitions, and opportunities of the members of this group will result in widely differing success in later life, in the main the early occupational needs of the several members of the group are identical and the same method of exercising vocational guidance is proper for all. This method may be designated as "Employment Supervision." It may be said in passing that this method requires, for its highest efficiency, a system of compulsory continuation schools.

Second, there is the group of pupils who will spend from two to four years in the high school (senior), but who are not contemplating a college career. Again, while individual differences will ultimately distribute the members of this group widely, their need for vocational guidance which the school can meet most effectually is the immediate one, and the method which is the most appropriate for meeting it may be termed "Vocational Information and Placement." In passing, it may be said that the value of such vocational information and placement will be enhanced many fold by high-school courses of instruction with a vocational content, though some guidance may be given without intensive vocational courses.

Third, there is the group which is clearly on its way to higher educational institutions. The primary duty of the secondary school to this group, so far as vocational guidance is concerned, may be designated by the term "Educational Guidance."

Judging from some excellent experimental work which has been done with the first group, there would seem to be no good reason why educational authorities should not assume a degree of responsibility for young people up to sixteen or eighteen years of age, even if they have severed their connection with the regular public school. In fact, there are many excellent reasons why, for the sake of society as well as for the sake of the children, even more careful and more solicitous care should be given to such children because they have entered upon the exacting duties of occupational life. That children are at work is no reason why they do not need education, though they require a different kind of education from that which is possible in the regular school. It is of prime importance that they be so guided as to get all possible education out of their daily occupation, which they are not likely to do unless carefully and intelligently supervised by the educational authorities.

It is futile to talk about the value of the life-career motive in the guidance of this group, for most will have to be contented with "jobs" for many years, and perhaps may never enter upon a genuine "career," or "vocation." Whatever may be possible in the way of advancement for individual members of this group, the vast majority will constitute the rank and file of the industrial army, and their greatest success and happiness depends upon their ability to understand their condition and to make the most of the opportunities which it presents for work and for leisure. How can this best be accomplished?

Careful study of the occupations of the children of this group invariably reveals the fact that there must of necessity be considerable migration from job to job. While, from the point of view of the employer, this migration is wholly bad, from the point of view of the individual there are educational possibilities in such variety of occupation, and this possibility will be greatly enhanced when the school authorities are in a position to control the changes to some extent, to advise against undue and unnecessary "job hoboism," and to counsel the individual whenever a change is made.

In all this there is recognition of the fact that all education is not obtained in the school, but that the education which one gets

from his daily toil may be greatly enhanced if the school authorities assume the responsibility of guiding and counseling young workers.

Referring again in this connection to the continuation school, it should be said that it is possible to maintain continuation schools without exercising employment supervision, as described above, and conversely it is possible to exercise vocational supervision without establishing compulsory continuation schools. For securing the greatest return from either vocational supervision or the continuation school, however, it is imperative that the two be linked, and it is preferable that they be administered by the same school official.

It should also be said that the establishment of prevocational classes or of the junior high school will greatly reduce the need of this form of guidance, since many more pupils will be held in school thereby and will thus be brought into the second group.

Perhaps the most important phase of vocational guidance, as far as the secondary school is concerned, is that which is peculiarly appropriate for the second group and which was designated above as "Vocational Information and Placement." Several interesting experiments have been made in the smaller high schools, which demonstrate beyond the shadow of a doubt that it is possible so to collect and to impart such information about vocations in general, and to show the connection between these vocations and the various subjects of instruction in the high-school curriculum, as to cause the whole high-school situation to take on a new aspect to the pupils and to the teachers as well.

For purposes of vocational information the formal, traditional, academic courses are vitalized by reference to vocational work, and even the courses in handwork receive a new impulse. New courses are organized to inform the pupils regarding the nature, requirements, and rewards of various occupations, the personal characteristics and specific training which will render one most likely to achieve success in them, and the opportunities for those thus trained which the local and the more distant fields offer. Such courses include elements of history, economics, and sociology, and are more genuinely "cultural" than much of the school work which is justified mainly on that ground. An excellent example of this

type of vocational guidance was described in an article by D. W. Horton in the *School Review* (April, 1915).

The foregoing would seem to indicate that there is much material pertinent to vocational guidance which may be collected, and that the great need is for its co-ordination and its adaptation to the requirements of different groups of pupils. Such co-ordination must be worked out through experience with children in order to test the efficiency of the plan and to prove that the information given has real guiding power. All this will require time and intelligent patience, but any beginning, however crude, will be of great value to the cause.

For a general discussion of this question of giving vocational information to high-school pupils, and for some specific examples of such information, the following references will be found useful:

Davis, *Vocational and Moral Guidance*, Ginn & Co.
Bloomfield, *Youth, School and Vocation*, Houghton Mifflin Co.
Parsons, *Choosing a Vocation*, Houghton Mifflin Co.
Weaver, *Profitable Vocations for Boys*, A. S. Barnes Co.
Weaver, *Profitable Vocations for Girls*, A. S. Barnes Co.
Tolman, *Hygiene for the Worker*, American Book Co.
William DeWitt Hyde, Editor, *Vocations*, 10 vols., Hall & Locke Co.
Thirteenth Census of the United States: Abstract.

To achieve the fullest measure of success for any plan of vocational guidance for the group under discussion some provision for placement must be made.

In the larger cities this may possibly be accomplished most effectively by co-operating with established agencies, such as the public employment office, if one exists in the community, or with the Employment Department of the Y.M.C.A. or the Y.W.C.A. In Boston a Placement Bureau, established by agencies outside of the school, is doing effective work with public-school children. The Bureau is officially recognized by the School Committee, and a thorough system of blank forms for registration and reports is used by all the schools in their dealings with the Bureau.

There is no reason, however, why such a bureau should not be developed gradually in any school system. There has been a rapid development of this idea during the past two or three years, and

doubtless the placement bureau, at least in embryo, could be found in many schools. Several different plans have been worked out, two of which will be mentioned here.

The school system of Lincoln, Nebraska, has established an "Efficiency List," which is open to the inspection of the employers of that city. Enrolment on this list is not gained by scholarship alone, but by demonstrating that one possesses certain personal characteristics which are necessary for success in vocational life. While the characteristics which are now being noted are of a rather general nature, undoubtedly experience in operating the scheme will develop the desirability of recording special qualifications for particular occupations. In any event, half the object will be accomplished when the business men of Lincoln form the habit of consulting this "Efficiency List" and the school authorities when in need of young employees. This articulation of school and business is sure to develop any plan of this nature to the point of efficiency.

Another feature of the school placement plan is finely illustrated by a recent development in the public schools of Rochester, New York, which is described in the following quotations from a circular of information entitled "Co-operation between Employers and Schools."

> At present the laws of most of our states are so faulty that boys and girls under sixteen years of age may drop out of school for the purpose of going to work and then remain in idleness for months. Only a very few states require their youths to be either in school or at work.
>
> Not long ago the superintendent of an eastern trade school inserted the following advertisement in one issue of a daily paper:
>
> > WANTED—Boys and girls out of work to take courses in the TRADE SCHOOL UNTIL POSITIONS are secured for them.
>
> One such insertion brought nearly a score of young people to the school. Positions for some of them were found in a month, others who were not under economic pressure became interested in the school work and completed a year's course.
>
> During this year of business depression the waste of time through idleness has been greatly increased.
>
> In an attempt to remedy this situation two hundred letters (similar to the following) were sent to employers of Rochester, asking their co-operation in keeping children in school:

DEPARTMENT OF PUBLIC INSTRUCTION
MUNICIPAL BUILDING, ROCHESTER, NEW YORK

HERBERT S. WEET — SUPERINTENDENT
ALFRED P. FLETCHER — ASSISTANT SUPERINTENDENT
JOSEPH P. O'HERN — ASSISTANT SUPERINTENDENT

Yawman & Erbe Mfg. Co.,
424 St. Paul Street,
C I T Y.

Gentlemen:-

At the present time scores of boys and girls under eighteen years of age are walking the streets looking for work. They might better be in school. Many might be induced to return to school if they thought that they would not lose the chance of a position. The co-operation of the employers of Rochester is needed to get them to return. Would you be willing when in need of young workers (under eighteen) to telephone this fact to the Board of Education office and allow us to send one or more applicants to you?

If we could be assured of this co-operation we would urge boys and girls to take up courses in our Vocational Schools until positions were open to them.

Any consideration you may give this matter will be genuinely appreciated.

Yours very truly,

ALFRED P. FLETCHER

P. S.....Would you be willing to give out cards like the enclosed (cards to be furnished by us with your name imprinted) to young persons applying to you for positions?

January
Twenty-one,
1 9 1 5.

The following reply is typical of scores of letters that have been received:

YAWMAN AND ERBE MFG. CO.
Makers *of* Filing Systems
ROCHESTER, N.Y.

Department of Public Instruction,
Attention of Alfred P. Fletcher,
Assistant Superintendent,
C I T Y.

Dear Sir:-

We think the action you have taken to prevail upon the young boys and girls under eighteen years of age to remain in school and endeavor to secure positions for them is indeed commendable, and we shall be very glad to co-operate with you.

If you will send down a supply of the cards, just as the form enclosed, we shall be very glad to hand them out to young persons applying for positions.

Very truly yours,

YAWMAN & ERBE MFG. CO.

Edward Weter
Manager General Offices.

January
Twenty-five,
1 9 1 5.

A large number of employers promised to hand out cards like the following:

> AT the present time this firm is only employing workers (under eighteen years of age) recommended by the Department of Public Instruction. If you desire a position we would suggest that you communicate with Raymond C. Keople, 308 Municipal Building. Hours 9 to 10 A.M. and 4:30 to 5:30 P.M.
>
> YAWMAN & ERBE MFG. CO.

Seventy-seven boys and girls who had left school never expecting to return have been induced to re-enter school. Many of them were unwilling to return if they were to be given any book subjects. These pupils were given trade work that would fit them for some position. The girls were also taught those subjects that would help them to improve their home conditions. Gradually becoming interested in the school work, they have been induced to take up English and arithmetic.

Following is the record sent in by the teacher of one of the classes: 40 girls enrolled (during six months); 3 lost; 26 placed in positions; 11 remaining.

This simple experiment has been worth while. It seems to point to a time when boys and girls will know that the surest way to get a good position is to remain in school. When this time arrives the figures on "elimination" will be less formidable than they are today.

For the third group, namely, those who are to have an extended education reaching into the college or university, placement is, of course, entirely inappropriate for the high school. The vocational guidance needed here is the giving of information regarding the several professions, the opportunities which they offer, the extent and nature of the preparation demanded, the financial resources

needed for this preparation and for the lean years of early professional service, and the various educational institutions where preparation can be secured together with the requirements and advantages of each.

In addition to this information, as outlined above, vocational guidance for this group may well include a study of the personal characteristics of the students. For this purpose it is probable that psychological tests will ultimately be of some value. It must be confessed that, thus far, the results have been meager, and that, in the nature of the case, they will always be useful only within rather narrow limits. The most that can be expected of the psychological test for vocational guidance, in the secondary school, is the discovery of tendencies which are marked to an extraordinary degree—special aptitudes or disabilities. In the vast majority of school children ability to improve under training, to adapt one's self to the environment, is more marked than special aptitudes, so that geographic, social, economic, and educational conditions are more effective in revealing one's vocational opportunities than the most elaborate system of psychological tests. Nevertheless, wherever such tests can be made and interpreted intelligently, they should be employed, for they will help in preventing some of the unnecessary and wasteful stumbling and indirection which at present mark the college careers of so many youths.

And finally it should be said that the most convincing arguments in favor of vocational guidance are the numerous, if not extensive, plans which have been put into operation experimentally during the past five years. These have generally been worked out by progressive conservatives in education who have seen the great need and have tried to meet it. These educators have proceeded on the assumption that vocational guidance is not a new function of education but rather an old function which needs liberal extension, and they affirm, with practical unanimity, that nothing has come into the school system within a generation which has contributed to its educational efficiency in such large measure as has the organization of a system of vocational guidance.

SOME EXPERIMENTAL DATA ON THE VALUE OF STUDYING FOREIGN LANGUAGES

DANIEL STARCH
University of Wisconsin

The value of studying foreign languages, aside from the direct use of the modern languages, has been very much overestimated in some quarters and perhaps equally underestimated in other quarters. The controversy over the amounts of pure intellectual discipline of the various branches of instruction has been the warmest in the field of the languages, particularly the ancient ones. As a matter of fact, however, the controversy could be just as animated in the field of the sciences, when one recalls the distorted claims of discipline made for them in certain quarters.

This article will present some definite data on the amount of disciplinary or derived value of certain aspects of studying foreign languages. It is not claimed to present a complete measure of one or of all phases of such study, but it is certain that definite objective facts and measurements are far superior to individual opinions based on haphazard instances.

Scholastic records of students presenting different languages for college entrance.—The first problem considered was a comparison of the scholastic records of university students who had entered the university with two to four years of Latin with the records of those who had entered with two to four years of German. The average grade for the four years of college work of each of the graduates of the College of Letters and Science of the year 1910 was computed. The median mark of the 104 students who had entered the university with Latin was 85.7 and the median mark of the 45 students who had entered with German was 84.0. Hence the difference between the two groups is only 1.7 points.

The explanation for this small advantage of Latin over German may be sought in three directions: First, the disciplinary difference between Latin and German is either zero or very small. Second,

whatever difference they may have produced originally may have tended to disappear in the four years of college work, owing to the freedom of electives, pursuit of different courses, disciplinary effect of other studies, etc. Third, the small difference in scholastic records may be due to an original difference in the students themselves, owing to the possibility that one language may attract a better class of pupils than another. It seems very probable that if any real difference exists it is due chiefly to the third reason.

To determine what part, if any, the first two factors played, the average grade of each of the 738 Freshmen of the year 1909–10 was computed. The median grade of the 416 Freshmen who had entered with Latin was 82.4 and that of the 322 Freshmen who had entered with German was 81.0. Hence the difference between the two groups was only 1.4 points, or approximately the same as that for the graduates.

The next problem was to compare the grades of these two groups in specific subjects as follows:

Median grade in modern languages of 362 Freshmen who had entered with Latin	84.5
Median grade in modern languages of 293 Freshmen who had entered with German	82.3
Difference in favor of the Latin group	2.2
Median grade in Freshman English of 54 students who had entered with Latin only	83.9
Median grade in Freshman English of 97 students who had entered with German only	82.7
Difference in favor of the Latin group	1.2
Median grade in first-year French of 27 Freshmen who had entered with Latin only	81.5
Median grade in first-year French of 34 Freshmen who had entered with German only	82.0
Difference in favor of the German group	0.5

The differences again are very small. The claim of language teachers, so commonly made, that beginners in French who have had Latin are much superior to those who have not had Latin, or that students in English with previous training in Latin are superior to those without such training is ill founded. It is another example,

so common in educational thinking, of generalizing from striking, isolated cases. What differences do exist are due primarily to the selection of students. The pupils who entered the university with Latin were on the average better, but only slightly better, pupils before they studied Latin than those who undertook German. The traditions in many high schools have been such that somewhat better pupils have tended to select Latin.

Another tabulation (Table I) was made to show the scholarship records of Freshmen in relation to the amount of foreign languages studied, irrespective of what the languages were.

TABLE I

Years of Foreign Languages	Number of Students	Median Grade in All Freshman Studies
0	25	81.8
1–2	224	81.9
3–4	195	83.05
5–6	155	84.0

Effect of studying Latin upon the size of one's English vocabulary.— The next problem was to measure the extent to which a pupil's English vocabulary is increased through the study of Latin. The method employed for determining the size of a person's English vocabulary has been described elsewhere and hence will not be discussed here.[1] Suffice it to say that the method employed measures the percentage of the entire English vocabulary, as well as the approximate absolute number of words whose meaning a given person knows sufficiently well to use them correctly. The test was made with 189 university students and with 46 Juniors in the Madison High School.

	Per cent
Size of English vocabulary of 139 university students who had studied Latin	60.9
Size of English vocabulary of 50 university students who had not studied Latin	58.2
Size of English vocabulary of 14 high-school Juniors who had studied Latin	54.7
Size of English vocabulary of 32 high-school Juniors who had not studied Latin	50.2

[1] D. Starch, *Educational Measurements* (in press). Macmillan.

The differences between the Latin and the no-Latin groups are surprisingly small. One of the reasons commonly urged for the study of Latin is its tendency to increase the student's English vocabulary. The difficulty in the situation lies in the fact that, while many English words are derived from Latin sources, the meanings of the English words are often so warped or distantly derived that it is necessary to learn the specific meanings. Simply to recognize that "boaconstrictor" contains the root *constringere*, "to draw together," will not teach a pupil that it means a certain kind of reptile. So far as the root-meaning is concerned, the word might have been applied to scores of things that contract. This point was brought out forcibly by the students on whom the test was made. The Latin students recognized in many instances the presence of Latin roots in the English words used in the test, but they could not be sure of the specific meanings without having definitely ascertained them. In many instances they would ascribe, by inference from the root-words, entirely erroneous meanings. Nevertheless the study of Latin does produce an appreciably larger English vocabulary. This advantage becomes less in university students, with whom it is partly counterbalanced by the increase in vocabulary due to wider experience.

Effect of studying foreign languages upon knowledge of English grammar and upon correctness of usage of English.—The final problem was to ascertain to what extent the study of foreign languages increases a pupil's knowledge of English grammar and to what extent, if at all, it increases correct use of the English language. The methods by which correctness of usage and technical knowledge of grammar were measured have been described elsewhere.[1] In brief, the test for usage consisted of a set of one hundred sentences, each of which was stated in two ways. The task of the pupil consisted in indicating the correct forms. Technical knowledge of grammar was measured by certain tests involving the designation of parts of speech, cases, tenses, and modes. These tests were made upon 54 university Juniors and Seniors and 146 high-school pupils. They gave the results shown in Table II, in which the scores for knowledge of grammar are the numbers of the parts of speech,

[1] *The Measurement of Ability in Reading, Writing, Spelling and English.* The College Book Store, Madison, Wisconsin.

cases, tenses, and modes indicated correctly in a specified period of time, and the scores for correctness of usage are the numbers of sentences designated correctly in a specified period of time.

TABLE II

Years of Foreign Languages	Number of Students	Average Scores for Knowledge of Grammar	Average Scores for Correctness of Usage
UNIVERSITY JUNIORS AND SENIORS			
0.....	2	48.0	81.5
2–5.....	12	47.8	71.1
6–9.....	25	58.6	75.5
10–15.....	15	63.4	75.7
HIGH-SCHOOL PUPILS			
0.....	12	14.7	32.2
8 weeks.....	50	20.8	43.0
1 year.....	18	25.5	43.4
2 years.....	39	24.8	45.9
3 years.....	27	28.6	47.7
UNIVERSITY JUNIORS AND SENIORS			
Years of Latin			
0.....	15	45.8	70.9
1–3.....	11	56.1	75.7
4.....	14	57.5	74.3
5 or more.....	9	61.8	76.1

Another test for correctness of usage, consisting of sentences like the set of one hundred, but arranged in the order of increasingly difficult steps, was made on another group of 146 university students and 92 high-school pupils. This test yielded the results given in Table III. The scores are the numbers of the highest steps passed. The higher the score is, the greater is the ability of using English correctly.

These tables agree in showing one very significant result, namely, that *the study of foreign languages materially increases a pupil's knowledge of English grammar but only slightly increases his ability in the correct usage of the English language.* Notice, for example, the upper part of Table II. The students who had 10 to 15 years of foreign languages made a score in grammatical knowledge of 63.

as compared with a score of 47.8 made by the students who had 2 to 5 years of foreign languages, a difference of 32.6 per cent in favor of the former group. For correctness of usage, the corresponding difference is only 6.4 per cent. The two students with no foreign languages made high scores because they were exceptionally good students, but they are too few in number to be considered. The high-school pupils show a gain in grammatical knowledge of 37.5 per cent from the 8-week group to the 3-year group and a gain in usage of only 10.9 per cent. The 12 pupils with no foreign language made low scores because they were exceptionally poor pupils. This is indicated by their low scholarship records, by the fact that

TABLE III

Years of Latin	Number of Pupils	Average Scores
UNIVERSITY STUDENTS		
0.....	47	10.1
1–6.....	99	10.2
HIGH-SCHOOL PUPILS		
0.....	78	9.0
1–4.....	14	9.3

many were over-age, by the fact that they avoided the foreign languages, and also by the large difference between their scores and those of the 50 pupils who were just beginning foreign languages. Eight weeks of foreign languages could hardly have produced such a big gain. Their higher scores must be due to a difference in original nature. The same facts are brought out by the comparison for Latin alone. The gain of the 5-or-more-year group over the 0-year group in grammatical knowledge is 34.9 per cent and in correct usage only 7.3 per cent. Latin obviously has no advantage over any other foreign language in increasing grammatical knowledge or usage of English.

Incidentally the implication may also be pointed out that knowledge of grammar has very little effect upon correct usage. The large increases in grammatical knowledge are accompanied by only very small increases in correct usage. Correct usage is primarily a matter of establishing correct habits of speech, and grammatical

knowledge is useful only in so far as it helps to establish such habits. Apparently imitation and repetition of correct expression are far more efficacious in forming correct habits than grammatical knowledge. The recent tendency to reduce the time devoted to formal grammar and to postpone the study of it to later years is in accord with these findings.

The argument often advanced for the study of foreign languages, and particularly for Latin, that they are a great aid in the use and comprehension of English is unfounded. Arguments of this kind are unnecessary. Why should we not study Latin on its own account as a language and as a guide to a literature of its own? Its aid, as well as that of any other foreign language, in facilitating the use of English is very small. Why not recognize this as a fact? If you wish to know English, study English, but not via Latin or some other language. If you wish to know Latin, study Latin for its own sake primarily, an end sufficiently worthy in itself. The aid of one language in the study of another is only incidental and unimportant, at least so far as present methods of teaching foreign languages go. The figures presented should not be interpreted as an argument against foreign languages or particularly against Latin, but rather against certain assumed disciplinary, transferred, or derived benefits.

Summary.—The scholastic records of students in the university entering with Latin are only to a slight and negligible extent better than those of students entering with German. Likewise, the scholastic records in modern languages, either beginning or advanced, or in English, of students entering with Latin are only to a very slight extent better than those of students entering with German. This slight difference is probably due to an inherent difference in the students rather than to a difference produced by these languages.

The English vocabulary of pupils who had studied Latin was 2.7 per cent larger than the vocabulary of those who had not studied Latin in the case of university students, and 4.5 per cent larger in the case of high-school pupils.

The study of foreign languages materially increases a student's knowledge of English grammar, but only slightly increases his ability to use English correctly.

A SCHOOL PAGEANT

ROSE ADELLE GILPATRICK
Coburn Classical Institute, Waterville, Maine

In recent years the pageant has been recognized as the most popular and interesting form of entertainment to be given on a grand scale out of doors. It also has been presented very successfully on an indoor stage. This latter form has been found to be adapted especially to the secondary schools, for it possesses great educational value and appeals to the dramatic instinct of young people. Such a pageant was given recently by the students of Coburn Classical Institute in Waterville, Maine.

This pageant, which was of a historical nature, was entitled *The Progress of Civilization*. It was composed and compiled by the instructor in history, whose aim it was to make it illustrative of the history studied in school. For that purpose, scenes were selected from the ancient, the mediaeval, and the modern period which were typical of the development of civilization, and which at the same time presented dramatic possibilities or opportunities for spectacular effects. Unity was given to the whole by introducing a Spirit of Civilization, who in the prologue told of her origin, growth, and ideals, and in the concluding scene found in America hope of the fulfilment of her dreams.

The pageant was in four parts, taking up the civilization of the Greeks, the Romans, the Middle Ages, and the modern period. The first act consisted of scenes showing the rise of the Athenian power by the victory of the Greeks over the Persians. At the beginning the Greeks were represented as refusing to grant to the Persian messengers the tokens of submission—earth and water. Then the famous runner, Pheidippides, appeared upon the scene, bringing the message from the Spartans that they could not aid the Athenians before the full of the moon. With the Greek setting and the classic simplicity of the costumes, the scene seemed most realistic, and the runner thrilled his audience with the recital of Browning's masterly poem. This was followed in turn by a second appearance of

Pheidippides bearing the news of the victory of Marathon. As he shouted, "Rejoice, Athens is saved!" he fell dying, having given his life for his country.

The Delphic oracle presented material for another classic scene, foretelling the victory of Salamis through refuge in "the wooden walls." The priestess on her tripod, who in this case happened to be the teacher of classical languages, by her weird incantations showed the magic of the ancient Greek tongue.

The Greek civilization at its height was shown by two scenes representing the Pan-Athenaic Festival. The first was the procession, in which nearly all the students had a part, appearing in festive attire in the guise of stately dignitaries, members of the chorus, bearers of the robe sacred to Athena, and happy youths and maidens. As they came on the stage with music and singing, they received much applause. The second scene, representing the awarding of prizes at the festival, showed the victors in the various athletic contests, in music, and in poetry receiving the prizes of olive wreaths and oil from the trees sacred to Athena.

In the interval between the Greek and Roman scenes a group of girls gave a fancy dance called "Greek Girls Playing Ball." With their simple white gowns decorated with gold in the Greek pattern and with gilded balls, they presented a picture suggestive of all the grace and beauty of the maidens of that ancient time.

The Roman civilization was introduced by a scene from Vergil, the parting of Aeneas and Dido. This was one of the most beautiful and effective scenes. The characters were chosen for the most part from the Vergil class, and Dido showed that she had caught the real spirit of the Tyrian queen as she implored and berated the inexorable Aeneas.

Tarquin and the Sibyl showed the power of religious superstition over the Roman mind; the Vestal Virgins also revealed the religious instinct. The power of Rome in its rise and fall was pictured in the dream of Caesar on his imperial throne as he saw the characters famous in Roman story one after another pass across the stage.

The mediaeval period was ushered in by the knighting of the squire, showing some of the characteristics of the age of chivalry. The class that had been reading *Ivanhoe* and studying English his-

tory entered into this with zest. The young squire, who had been kneeling all the night before the altar, took his vows with an earnestness that made knighthood have a new meaning. As he set out for the tourney field with the favor of the Queen of Love and Beauty, he had all the audience on his side.

The power of the church during the Middle Ages was portrayed vividly as the monks, clad in gown and cowl, came in chanting the "Stabat Mater"; and later as Pope Urban at the Council of Clermont gave his ringing speech which called forth from his hearers cries of "It is the will of God," and "On to Jerusalem."

The modern period gave opportunity for a strong scene showing the Reformation when Martin Luther before the Diet of Worms, being asked to renounce his faith, refused to recant. The most elaborate scene of all represented the court of Queen Elizabeth. Here the boy with a keen sense of humor proved himself an ideal jester, furnishing merriment for the courtiers until their attention was held by the entrance of Walter Raleigh with his captains and Indians, who had come from the newly settled colony in America. The knighting of Raleigh and the naming of the new land, Virginia, in honor of the Virgin Queen, served to make known the discovery of the New World.

The last scene was the grand climax, which aimed to show the ideal of civilization. The curtain arose with all the characters upon the stage and the Spirit of Civilization in the center, still seeking to find her ideal. Then the representatives of the Western nations came bringing their gifts: Greece, art; Rome, law; France, beauty; Germany, learning; England, the Magna Charta; Italy, music; and America, brotherly love symbolized by an olive branch. As each one came in appropriately dressed, the national song of that country was sung by those on the stage. The scene ended with the crowning of America by the Spirit of Civilization and the singing of our national song.

The costumes, of course, presented one of the most serious problems, as well as one of the most interesting. It was decided to make as many as possible, and the result was that only about twenty-five were hired. It became necessary to study up the dress of all these different periods and it seemed best not to trust the designing and cutting to the students themselves. Each of the women teachers

became responsible for a certain period, and under her direction the costumes worn in those scenes were cut and made. All the cutting was done at the school by a dressmaker engaged for the purpose. Those who could make their costumes, or have them made, did so. The rest were made at the school. For three weeks we had a sewing department where teachers and students gathered outside of school hours for work. Most of the material, which consisted of unbleached cotton, cheesecloth, cambric, and sateen, was purchased at wholesale and sold to the students at cost. They paid for the materials, but not the cutting. A sewing machine was put in, and even some of the boys became expert in running it. It was surprising what skill both faculty and students developed in designing sewing, and decorating during this course in dressmaking.

The stage setting was another problem, for the city opera house, where the pageant was to be given, had nothing but an out-of-door scene that could be used. Accordingly, we had two drop curtains made, one for the Greek and Roman scenes, and another for the mediaeval. We made the drops out of unbleached cotton cloth and had them painted by a local painter, who fortunately had had some experience in that kind of work. Nearly all the stage properties, too, had to be made. Had we had a manual-training department, the work might have been done there.

The business management was left to one of the teachers, but the students got experience in advertising and selling tickets. Great was their joy when they found that all the seats had been sold for the first performance.

In spite of the great amount of time put into it, the pageant did not interfere greatly with the work of the school. It is an interesting fact that the ranks for the month during which the pageant was in preparation showed fewer deficiencies than in any previous month. The members of the faculty were all of the opinion that the benefits derived more than compensated for the time and energy spent. Some of the results observed are the greater interest in history, as well as in other subjects, especially public speaking; the better understanding between students and teachers; the discovery of latent talent and the desire to develop it; the spirit of helpfulness; and, above all, a marked increase in healthy school spirit.

CREDIT FOR QUALITY

That there is widespread interest in the rapidly increasing practice of granting varying credit based on quality of work is evidenced by the numerous communications which the *School Review* has received since the publication of Professor Ruediger's article in September, "Is Credit for Quality Sound?" Two of these are given below, one by Professor Meyer, of the University of Missouri, the other by Professor Hoblit, of the State College of New Mexico, whose article in the May number of the *Review*, "The School Unit; Quantity, Quality, and Credit," precipitated the discussion. To these is added a statement by Principal Johnson, of the University High School, Chicago, showing in detail the method of assigning credit in this school, which is typical of the practice employed in a considerable group of Illinois high schools.

IS CREDIT FOR QUALITY SOUND?—A CRITICISM

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University of Missouri

Professor Ruediger was kind enough to call my attention to his article in the September, 1915, number of the *School Review*, "Is Credit for Quality Sound?" Although there are many statements in this article to which I would take exception, it hardly pays to debate them all because they seem to rest on a fundamental difference of temperament and attitude toward life, so that at the end of the debate neither party would be likely to have convinced the other. On two points, however, I should like to record and try to justify my difference of opinion.

First, Professor Ruediger emphasizes, quite correctly (p. 453), the fact that the principle of varying the credit with the quality of the work could not be applied to the curriculum of an engineering school or other professional school with the effect of excusing the

student from any of the required (non-elective) courses. He adds: "And should this not be true of general culture schools?" He takes it almost for granted that the answer to this question can be only "Yes." My answer is emphatically "No." It is undeniable that a medical school would invite disaster if it should excuse a student from anatomy because he has done good work in physiology and other required sciences. But I cannot believe that many will share Professor Ruediger's horror at the sight of a college Bachelor who has "missed the studies of sociology, geology, astronomy, biblical literature, and the problems and history of philosophy," supposedly, because in other studies he has received credit for quality, and, supposedly, remaining now for all his life completely ignorant of anything he might have learned in the courses going under these names. There are many high-class colleges in the United States where a student would experience no difficulty in graduating in spite of having missed these five courses of formal instruction. Who is the authority establishing the rule that these or any other special courses, taken at the feet of a college teacher, are a *sine qua non* of generál culture? And if they were, what relation would the question of credit for quality have to such a fact as that of a certain course being required? Not all the schools of the University of Missouri, for example, vary the credit with the quality of the work. But those that do, do not in consequence excuse any student from any course specifically required. I believe that Professor Ruediger reasons about the principle in question without sufficient actual experience with its administration.

Professor Ruediger favors the practice of allowing an able student to take eighteen or twenty hours of work. (In Missouri the college student is restricted to sixteen, and the dean feels greatly relieved because he need not listen to the pleas of the students who want to take more.) But Professor Ruediger is mistaken if he thinks that in consequence of this restriction the student misses information which he ought to obtain. Does the brilliant student, eager to learn, spend his time in idleness whenever he is not sitting in the classroom or reading his assignments? Is there no library for his free choice? Further, his being restricted to sixteen hours for credit does not preclude his attending, without

recorded credit, any teacher's class if he thinks that such attendance would benefit him. But—and this is the crucial point—the bright student is not forced to choose, among the courses that happen to be offered, twenty hours no matter whether he cares for those offered or not. He can get additional credit by doing good work in fewer courses and then, in addition, is free to make his own choice between sitting at a teacher's feet and sitting at the library table. Summing up: No sane person who favored credit varying with the quality of the work ever proposed that this should lead to excusing the student from any specifically required study; or to preventing a faculty from requiring supplementary work in the same subject of a student weak in that subject. Professor Ruediger says himself (p. 454): "It bears no relation to credit for quality." Exactly so. But why, then, does he bring it in?

The second point which I wish to discuss is the quotation of the words "empty honor" from the catalogue of the University of Missouri. Professor Ruediger, being unfamiliar with the inner history of the University of Missouri, has entirely misunderstood the meaning of these words. Formerly, each division of the University awarded to one student the honor of valedictorian of the graduating class. This particular honor used to be ridiculed by the students as an empty honor and was abolished by those divisions which introduced credit for quality. It has never occurred to any faculty member to think, as Professor Ruediger supposes, of scholarships and fellowships, promotions into the faculty, recommendations or other positions, and the like, as empty honors. If so, the faculties of the divisions would have had to abolish these too. These are indeed not *empty* bubbles, but realities highly appreciated. Moreover, they are not primarily *honors* at all, empty or abundant. It may be an honor to be President of the United States, but it is primarily only a position of service. The people do not elect a man in order to honor him, but in order to secure his services. Scholarships are given to students, not in order to honor them, but to enable them to serve society. The honor is quite secondary. An employer chooses the most intelligent one of several applicants for a position. The faculty welcomes within its ranks its brightest students. How could this be otherwise when it is a question of

future service? All this has no essential relation to the award of honors or to credit for quality either. Why then bring it in?

Seven years ago, when one of the divisions of the University of Missouri first introduced varying credit, I made up my mind to watch carefully its effect, good and evil, on university life and to make public my observations in an unbiased report telling it all. The article intended has never been published. It will never be published for the simple reason that during these seven years nothing has happened that is worth saying. Students come and go, as they used to. Some use their opportunities wisely, some waste them, as formerly. Some try to improve themselves, others merely hunt for grades, as before. Teachers, too, are the same kind. Some "grasp the theory of motivation," others use "vicious artificial incentives." There is no difference between now and ten years ago. I have also asked those of my colleagues who were here, not only during these seven years, but also during seven years before. There is not one who would swear that a difference was obvious. The only ones that fancy a difference are those who were not here previously. I am thoroughly disillusioned. It is a small matter whether you exchange one for the other, constant credit and credit varying with the quality of the work. It is a mere ripple on the ocean of school life. One of my colleagues, after listening to a speech denouncing the principle of credit for quality because of its resulting evils, said: "These evils must be truly unspeakable; for after talking for half an hour the speaker has not told us yet what they really are."

If it makes any difference whether a school gives constant credit or varies the credit with the quality, difference must be looked for in the direction indicated by the following experience. When teachers line up for or against varying credit, in general (exceptions notwithstanding) those are for it who wish to give the student as much freedom as possible to work out his own salvation under guidance, but not under force; and those are against it who believe that the more fixed the curriculum the better for the student. Credit for quality makes the student the more independent of the faculty in the selection of his courses and his methods of obtaining information, the brighter he is. That is the crux of the matter.

IS CREDIT FOR QUALITY SOUND?—A REJOINDER

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The question as to the soundness of credit for quality, discussed in the September, 1915, issue of the *School Review* by W. C. Ruediger, seems to call for a rejoinder from me, since Mr. Ruediger's criticism of such credit was provoked by my article upon the high-school unit in the May issue. Especially do I feel called upon to answer because of the fact that Mr. Ruediger seems gravely to have misapprehended the scheme of credit outlined in my article. He says: "The fourth objection to credit for quality is the most serious of all. Such credit varies the educational content covered by the different students, and yet this variable content is indicated by the same diploma or degree." And he goes on to illustrate by supposing the case of a school in which 60 units are required for graduation; that this requirement, however, may be reduced in the case of bright students by granting extra credit, and increased in the case of dull students by decreasing the credit allowed for each class-unit, the net result being that the dull student might be required to cover as much as 50 per cent more ground than the bright student, while the latter, by reason of his brilliance in part of the required course of study, might be graduated with a shortage of as much as 10 units of the usual requirement for graduation.

Now a careful reading of my first article will show that there was no suggestion that high-grade work should result in a change in the content of the course, either by abbreviation or by elimination of any part of the prescribed work. The bright student must do the work that is required of the average student, but he may by virtue of his superior ability perform the work in less time. The abbreviation of his course will be, not as regards content, but as regards time. But the dull student, also obliged to do the work required of the average student, will have to do such additional work in the several prescribed courses, or in other courses, as will win for him the requisite number of credit-points to bring his total credit to a parity with that of the average student at least.

The difference between this and the case supposed by Mr. Ruediger will be apparent from an example. Suppose that a certain high school requires 15 units for graduation; that each unit is given, for purposes of qualitative credit, an arbitrary quantitative valuation of 200 points; and that each student who graduates *must cover all the ground of these 15 units* and win a minimum qualitative credit in the whole course of 2,400 points. This means that he must win an average of 160 points, or grade C, in each unit of his work; and, allowing for possible failure in parts of his work, by covering the ground of 4 units each year he will finish his course in four years. Suppose now a student to be strong enough to carry 5 units each year. Then he can, by winning not fewer than 160 points in each unit, finish in three years. But a student who is so weak as to be able to maintain an average of only 140 points, or grade D, in each unit will require at least four and a half years to complete a course of 15 units and do the extra work necessary to satisfy a reasonable standard of passableness.

This scheme, therefore, does not propose that quality shall make up for quantity, but only that if a student offers the minimum quantity, the quality of his work must not in any part fall below grade D, and in the aggregate must be kept up to C, the average grade. It may be expected, therefore, that there will be normally a concomitant variation of quantity and quality, but not so operating as to cut out anything essential. To the able student two courses are open: a maximum amount of work each year, with some sacrifice of quality and gain of time; or the normal amount of work each year, with increase of quality and lengthening of the time taken to complete the course. The weak student, by minimizing the amount of work undertaken each year, may increase the quality, but will normally need to take more time to complete his course.

In such a scheme, quantitative credit according to quality is not "an unrelated bonus," but is a vitally important index to determine the amount of time and application that the student must give in order to meet the requirements of any specific course of study. And with such a program of credit for quality in mind it is clear that most of Mr. Ruediger's criticism is irrelevant.

The question is asked: Why stop the awarding of credit at D with 70 per cent? For the reason that 70 per cent has long been regarded in many schools as the minimum passing-grade. In the scheme criticized, however, grade D and 70 per cent mean that the pupil who makes that grade has passed in the subject and is given a credit of 70 points toward the 2,400 that he must make for graduation in a 15-unit high-school course. If his work is of a poorer quality, he may have gained something, it is true, but it would manifestly be disastrous to both discipline and scholarship if the school should give fractional credit indefinitely.

It may be admitted that we are already giving credit for quality. But the credit that must be won and the manner of winning it are not ordinarily defined in such a way as to incite the laggard student to better work, whatever may be said as to the effect of honors that are reserved for the good student. And this brings me to the last point which I will notice—"the vicious artificial incentive" which is said to be introduced by credit for quality.

The scheme which I propose, as has been shown, does not contemplate "extra credit" in the sense in which my critic understands that term. The normal required course leading to graduation is not weighted with extra credit to the good student so as to decrease in any way its content. But the path of the laggard is hedged with restrictions which make it impossible for him to finish a course with low-grade work in the same time and with the same grade of diploma as the student who does high-grade work. He learns in his school experience something quite definite as to the meaning and operation of a principle which is really alive outside of school—that quality is vitally important and really does count as a determining factor in the appraisal and reward of all human achievement. If, then, it be granted that the awarding of credit in school according to quality does constitute an artificial incentive, or even a "vicious" one, it would seem to be justified on the ground that it accustoms the student to conditions which he will have to meet as soon as he closes the schoolhouse door behind him.

CREDIT FOR COURSES IN THE UNIVERSITY HIGH SCHOOL

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The University High School

The operation of the system of varying credits employed in the University High School can be understood only when examined in connection with the requirements for graduation. These are as follows:

The following groups of courses are offered:

Group I. English
Group II. Foreign Language
- *a*) Latin
- *b*) Greek
- *c*) French
- *d*) German

Group III. Mathematics
Group IV. History
Group V. Science
Group VI.
- *a*) Shopwork
- *b*) Drawing and Design
- *c*) Domestic Science
- *d*) Household Art

Group VII. Music
Group VIII. Physical Training and Hygiene

REQUIREMENTS FOR GRADUATION

For graduation 16 units are required, of which 9 are specifically required and 7 are elective.

Specific requirements.—The 9 units specifically required are as follows:

	Units
English	3
Foreign Language	1
Mathematics	1
History	1
Science	1
Group VI	1
Physical Training and Hygiene	1
Total	9

Elective courses.—The 7 elective units must be selected in compliance with the following requirements:

1. In addition to the requirement in English, there must be offered from Groups II–VI one major sequence of 3 units from one group, and two minor sequences of 2 units each from two other groups.
2. Two sequences may be offered from Group II, but from no other group.
3. Not more than one unit each may be offered from Groups VII and VIII.

Credit for courses is assigned according to the following plan: The passing-grade is 60. Grades are given only in multiples of five from 60 to 100. The amount of credit assigned for a course varies with the number of hours and with the grade received. For such courses as drawing, design, and shopwork, in which no preparation outside the classroom is required, one-half the amount of credit is given for the same number of hours as in other courses. In courses with daily recitations requiring preparation, credit for one year is given as follows:

	Units
A+ (95)	1.25
A (90)	1.20
B+ (85)	1.15
B (80)	1.10
C+ (75)	1.00
C (70)	0.95
D+ (65)	0.90
D (60)	0.85

For semester courses, for courses with less than five recitations per week, and for courses in subjects not requiring preparation, a proportionate amount of credit is given.

The following limitations have been fixed in determining the amount of credit given:

1. Pupils who receive extra credit may not take work in excess of 4 units on a basis of C+ (75) grade, physical training excepted.
2. Pupils may take a maximum of 4½ units reckoned on a basis of C+ (75) grade in case the excess over 4 units is for subjects in Group VI, or debating, dramatics, or music. But no extra credit may be received for high grades.
3. Pupils taking work in excess of 4 units on a basis of C+ (75) grade will receive penalty for low grades.
4. Pupils will be allowed to take work in excess of 4½ units on a basis of C+ (75) grade only when the average grade of the previous semester has been B, except by special vote of the faculty.

5. The total excess credit shall not be more than double the amount earned in the last half of the course.

This plan is devised to meet two distinct aims. It aims first to offer a substantial reward, open on equal terms to all, for work of a quality above what has been found in practice to be the median standard of the school, as well as a corresponding penalty for work falling below this standard. It will be noted that for work of exceptionally high grade a pupil taking four subjects may secure credit for 5 units in one year. With the one unit in physical training and hygiene, required of all, which it will be noted in limitation 1 may be taken in addition to the four subjects, such a pupil may complete the requirements for graduation in three years. It should be carefully observed that for graduation such a pupil must have completed two major sequences of 3 units each in two groups and two minor sequences of 2 units each in two other groups, beside the minimum of 1 unit each in the two remaining groups. Such a course, completed with a very high degree of excellence, meeting the important demands of breadth and sequence, can be defended from every reasonable standpoint.

The other aim has been to limit the growing tendency to take an excessive number of courses which has greatly lowered the efficiency of high-school classroom achievement in respect to both the quantity and the quality of work accomplished. It is not unusual to find pupils carrying five, six, or even more, unit courses, and a critical study of the situation reveals the fact that these pupils are quite as likely to be those whose past record is poor as those of superior attainments. It is doubtless possible and desirable for some pupils to accomplish more than the normal amount of work. The foregoing plan makes this a privilege to be secured as one of the tangible rewards of excellence in previous work. Limitation 4 provides for exceptions to the number of courses allowed a pupil. Only one pupil this year has been allowed to exceed this limit by special vote of the faculty.

Varying credit has been given in the University High School for four years. In this time no pupil has, by reason of this method, been graduated in three years. Several have secured as many as 20 units in four years. It is easy to draw conclusions which have

not been subjected to scientific testing. It is certainly true that good scholarship is in higher esteem among the pupils of the school. Rewards open to all on even terms place distinctions for scholarship on a much higher social plane than has generally prevailed where such rewards have been few, often artificial, and not infrequently open to question, by pupils and teachers, as to whether they have fallen where deserved.

With the growing recognition of the unity of the work of the upper years of the high school and the earlier years of the college, it seems certain that we shall soon have an opportunity to make still more tangible the rewards for excellence of work, as well as to test the validity of this new practice, at least from the standpoint of efficiency. The University of Chicago is now making an experimental test by admitting pupils from a few schools on this basis of credit. Few, if any, will doubt that a pupil with less than the normal number of units for work of high grade is as competent to do college work as another pupil with a considerably larger number of units secured at the lowest possible grade. Graduates of the University High School will soon present claims for advanced standing at the University on the basis of units secured in excess of those usually given for the same number of courses. We shall wait, with interest, to see if their college records justify this action. While college records do not offer the only, or, perhaps, the best, test of school practice, it is fair to assume that efficient habits of work and a desire for high achievement provide an excellent basis for success anywhere.

EDUCATIONAL NEWS AND EDITORIAL COMMENT

Standards of Efficiency in the Teaching of English

In no field of school work is the need of standards of efficiency so great and the formulation of adequate standards so difficult as in English. Until recently the only available standards have been the college-entrance requirements, whose futility all have recognized. The more recent efforts to form scientific scales like the Hillegas-Thorndike and the Harvard-Newton scales for English composition have shown how difficult it is to secure workable standards for school use. The significant and hopeful fact is that English teachers themselves, who have felt free to ride any one of a dozen hobbies with no anxiety save to escape a fall when their pupils meet the barrier of college-entrance requirements, are everywhere setting themselves seriously to the task of considering what pupils should know and be able to do to meet the demands which society may reasonably make upon the pupils who have passed through their hands.

A notable example of this new attitude is found in the tentative minimum standards prepared for the Boston schools by a Committee on Standards in English, discussed in the October number of *Education* by Carolyn M. Gerrish, secretary of the committee. These standards require that a graduate of an elementary school should be able to do readily the following things: (1) to copy twelve lines of simple prose or poetry, and a bill of at least seven items; (2) to take down from dictation a passage of simple prose; (3) to write from simple directions a friendly letter or an application for a position; (4) to write within a half-hour a simple, original composition of not less than one page of letter paper, with every sentence grammatically complete (the pupil may make revisions, including interlinear corrections, but must not rewrite; in this composition the total number of serious errors in grammar, spelling, and punctuation should not exceed five); (5) to recognize the parts of speech in their common uses; to explain the construction of words and phrases in a simple sentence containing not more than one phrase modifier in the subject and one phrase modifier in the predicate; to have a practical understanding of the uses to which the dependent clause of a complex sentence can be put—whether it be to serve as noun, adjective,

or adverb; to know the principal parts of regular verbs and of the common irregular verbs, and their tense forms through the indicative mood; (6) to read at sight with readiness and good expression simple prose as difficult as *Little Men* or *Hans Brinker;* (7) to quote either orally or in writing fifty lines, not necessarily consecutive, of classic prose or poetry; (8) to stand before the class and talk clearly on some subject of personal, school, or public interest.

A graduate of a high school should meet the following requirements:

A. He should have ability: (1) to write original compositions—whether they be narration, description, exposition, or simple argument—that are logically planned and so developed as to be conspicuous for unity and coherence; the spelling and grammar should be correct, and the punctuation adequate; (2) to plan coherently and give fluently a five-minute talk on some practical subject on which he has had time to think; (3) to write any common type of business or social letter with technical accuracy and with simplicity and directness; (4) to find and organize material for an original composition of one thousand words upon business, political, historical, literary, or scientific subjects; (5) to read aloud, at sight, with intelligence and clear enunciation, anything from a newspaper to a classic of ordinary difficulty; (6) to tell why a piece of literature (like a standard novel, or essay, or a lyric poem such as may be found in the *Golden Treasury*) has merit; (7) to quote either orally or in writing two hundred lines (not necessarily consecutive) of classic prose or poetry.

B. He should have a working knowledge of the course of both English and American literature, of their great names and great books, and of some of the most significant influences in history and life that have molded such literature.

C. In addition to regular prescribed work in literature, he should have read from "A List of Books for Home Reading," prepared for the Latin and high schools by the English Council, or from the College-Entrance Requirement list: 4 good books of short stories, 5 good novels, 3 good plays, 2 good biographies, 2 good books of history or travel.

These standards are the result of many months of careful preparation.

The fact that these tentative requirements are being tested before being finally adopted is an added proof of the care and of the scientific spirit of the workers. What the pupils show they can be expected to attain under fair conditions is the test of these tentative standards. What the average pupils show they can accomplish under reasonable given conditions will be the basis of the requirements eventually adopted.

College Admissions

The report of the superintendent of schools of the state of Maine,[1] which has just appeared, contains a very interesting discussion of the whole matter of college admissions and of the part played therein by the New England Board. Superintendent Payson Smith draws a sharp distinction between the practical or vocational motive which he says prompts most of the young people who seek a high-school training, and the motive of preparation for college which is often uppermost in the minds of those who discuss high-school courses. He regards the college requirements as very much more conservative than the vocational and practical demands. Furthermore, he calls attention to the fact that most of the colleges on the New England Board are ultra-conservative, private institutions. Many of them are outside of the state of Maine and are very little in touch with the practical demands that govern the development of secondary schools in that state. That these private and conservative institutions should exercise any large influence on the development of schools which are supported by the people seems to Superintendent Smith to be altogether anomalous. His final statement on the matter may be quoted (p. 55):

> Ultimately, however, it would appear that in justice to all secondary-school students regardless of the courses they elect, in compliance with the reasonable demand of the public for the supervision of its own schools, as well as in the interests of the colleges themselves, there must come with a gradual readjustment of college-entrance requirements a permanent and generally recognized medium of communication between the several branches of the school system. This medium must be properly accountable to all who are interested in the schools' products.
>
> For Maine particularly, it is necessary that every precaution be taken to conserve the interests of the small schools upon which the secondary education of so many must depend. The highest welfare of any part of the educational system of the state, whether conducted under private or public auspices, is entirely consistent with a policy of the preservation to each of its own integrity. On the proper adjustment of all the parts one to another depends finally the right development of what may well be regarded as the most serious undertaking of the people.

When this statement is taken in conjunction with the fact that the state University of Maine has broken away from the Board, and also in connection with the fact that Dartmouth College has found it impossible

[1] *Report of the State Superintendent of Public Schools of the State of Maine for the School Year Ending June 30, 1914.* Payson Smith, Superintendent. 1915. Pp. 297.

to continue as a member of the Board, it becomes evident that the restlessness which arises from lack of co-ordination between New England colleges and secondary schools has become an important factor in the development of both institutions in New England. For some time the inco-ordination of New England colleges and of western high schools has been apparent to all who have had to do with certificating students from these western schools. The reorganization of the examination system in Harvard was confessedly due in large measure to a recognition of this lack of co-ordination between Harvard's entrance requirements and the work being done by high schools in the west. It will be a matter of only a few years before the New England colleges will have to recognize that western universities and colleges keep in close touch with their secondary schools and are meeting the demands of these secondary schools by a system of admission which recognizes the growth of both institutions. This is the only rational method of uniting all of the different parts of the school system. The development of intimate relations between secondary schools and colleges has been easier in the Middle West because the great state universities have, from the outset, recognized it as their function to relate themselves to the school system. That the New England colleges will have to move in the same general direction seems apparent to any observer who is not hemmed in by the conservative influences of these institutions.

Association of High-School Teachers of English of New York City

The fact that in many sections of New York City English is a foreign language in the homes of the pupils makes the problem of the English teacher a peculiarly difficult one. The time given to instruction in English is three periods per week in the second and third years of the high-school course. The Association of High-School Teachers of English has made a vigorous effort to secure additional time for instruction in the subject. This finally resulted last year in securing a recommendation to the Board of Superintendents that two periods a week in the second year and one period a week in the third year be added to the course in English. The recommendation was approved by the Committee on High Schools and by the Committee on Studies and Textbooks of the Board of Education, and the item of $80,000 to meet the additional expense was placed in the tentative budget by the Finance Committee. But stringent re-

trenchment demanded by the Board of Estimate and Apportionment, because of the European war, caused the recommendation to be set aside.

The Association has the satisfaction of feeling that the value and need of the extra time has been recognized and it is waiting for the restoration of normal conditions when it expects to gain the desired end. In the meantime it has devoted its energies to the problem of improving the effectiveness of English instruction through the co-operation of all teachers of all departments. Bulletin XVI of the Association of High-School Teachers of English of New York City, containing 59 pages, consists of the reports of ten committees on various aspects of the teaching of English, most prominent of which is the report of the Committee on Co-operation.

The following suggestions are made as standards for oral and written work in all classrooms:

In Oral Work

1. Insist on clear speaking. The student should stand erect, with head up, and speak with sufficient clearness to be understood in all parts of the room.

2. Insist on exactness. Require that the answer match the specific question asked. Do not say, "I know what you mean. It is this way." Lead him to employ words that will express his meaning with some approach to precision.

3. Insist on full answers. Resist the temptation to accept piecemeal replies. Where such a regulation is not too artificial, frequently require the pupil to explain in complete sentences what he means. Encourage the pupil so to organize his material that he can speak two or more minutes in elucidation of his ideas.

4. Insist on correctness. Do not accept "ain't" for "isn't," "don't" for "doesn't," "this here," "those sort," or similar ungrammatical or unidiomatic expressions. Be careful to secure the proper use of the tenses, especially of the present tense.

In Written Work

1. Require the uniform heading. The faculty in each school should reach an agreement concerning the heading to be required of all pupils in all their written work.

2. Insist on neatness, in both handwriting and arrangement.

3. Require correct spelling, not only of words in your subject, but of all common English words. To call attention to such errors will not be sufficient unless the pupil is made to feel that he cannot safely repeat the error.

4. Insist on clear sentence structure. Sprawling or incoherent sentences should be pointed out to the student. He will soon learn that he must exercise the same care in his other writing that the English teacher exacts in his themes.

5. Require such punctuation as will make the sentence clear at a single reading, especially the proper use of the period and the question mark. The faculty might well agree on a few of the important rules for the comma to be enforced in all writing.

6. Reject summarily all reports, papers, and notebooks obviously deficient in the elements of decent English and good form noted above.

Many other schools have set up similar minimum standards for spoken and written English. It is not too much to say that if all the teachers of any high school felt the importance of firm insistence upon some such minimum standards, the quality of the English training would be greatly improved. It might even be expected that the desired improvement in the New York schools could be secured with the present schedule. With such co-operation, many schools more favorably situated with respect to the necessity for English training might reduce the amount of time now devoted to the formal instruction in English.

Second Pan-American Scientific Congress

In accordance with the resolutions of the first Pan-American Scientific Congress, held in Santiago, Chile, December 25, 1908, to January 5, 1909, a second Pan-American Scientific Congress will meet in Washington next December under the auspices of the government of the United States. The Congress will open on Monday, December 27, 1915, and adjourn on Saturday, January 8, 1916.

The organization officers are: John Barrett, LL.D., secretary-general; Glen Levin Swiggett, Ph.D., assistant secretary-general; headquarters: Pan-American Union, Washington, D.C.

There are the following nine main sections of the program of the Congress: I, Anthropology; II, Astronomy, Meteorology, and Seismology; III, Conservation of Natural Resources, Agriculture, Irrigation, and Foresty; IV, Education; V, Engineering; VI, International Law, Public Law, and Jurisprudence; VII, Mining and Metallurgy, Economic Geology, and Applied Chemistry; VIII, Public Health and Medical Science; IX, Transportation, Commerce, Finance, and Taxation.

Section IV, Education, is most comprehensively treated. The three main divisions of Public Education in a Democracy, International Education, and Technical Education subdivide into the following: Elementary, Secondary, and University Education, Education of Women, The Exchange of Professors and Students between Countries, and Engineer-

ing, Medical, Agricultural, Industrial, and Commercial Education. This section will emphasize through the character of subject-matter discussed the more purely intellectual and cultural feature of the Congress and will appeal strongly to the delegates from the Latin-American countries, many of which have made marked progress in recent years in the field of education.

The Commissioner of Education of the United States, Dr. P. P. Claxton, is chairman of this section. Dr. S. P. Capen, specialist in higher education, Bureau of Education, is vice-chairman.

Conferences on the following topics will be held by the various sub-sections:

Sub-Section 1: Elementary Education.—To what extent should elementary education be supported by local taxation, and to what extent by state taxation? What should be the determining factors in the distribution of support?

Sub-Section 2: Secondary Education.—What should be the primary and what the secondary purpose of high-school education? To what extent should courses of study in the high school be determined by the requirements for admission to college, and to what extent by the demands of industrial and civic life?

Sub-Section 3: University Education.—Should universities and colleges supported by public funds be controlled by independent and autonomous powers, or should they be controlled directly by central state authority?

Sub-Section 4: Education of Women.—To what extent is coeducation desirable in elementary schools, high schools, colleges, and universities?

Sub-Section 5: Exchange of Professors and Students between Countries.—To what extent is an exchange of students and professors between American republics desirable? What is the most effective basis for a system of exchange? What plans should be adopted in order to secure mutual recognition of technical and professional degrees by American republics?

Sub-Section 6: Engineering Education.—To what extent may college courses in engineering be profitably supplemented by practical work in the shop? To what extent may laboratory work in engineering be replaced through co-operation with industrial plants?

Sub-Section 7: Medical Education.—What preparation should be required for admission to medical schools? What should be the minimum requirements for graduation? What portion of the faculty of a medical school should be required to give full time to teaching and investigation? What instruction may best be given by physicians engaged in medical practice?

Sub-Section 8: Agricultural Education.—What preparation should be required for admission to state and national colleges of agriculture? To what extent should the courses of study in the agricultural college be theoretical and general, and to what extent practical and specific? To what extent should the curriculum of any such college be determined by local conditions?

Sub-Section 9: Industrial Education.—What should be the place of industrial education in the school system of the American republics? Should it be supported by public taxation? Should it be considered as a function of the public-school system? Should it be given in a separate system under separate control? How and to what extent may industrial schools co-operate with employers of labor?

Sub-Section 10: Commercial Education.—How can a nation prepare in the most effective manner its young men for a business career that is to be pursued at home or in a foreign country: (*a*) in schools that are a part of the public-school system? (*b*) in schools of private endowment? (*c*) in special business schools of private ownership?

BOOK REVIEWS

Effective Business Letters. By E. H. GARDNER. New York: The Ronald Press, 1915. Pp. xii+376.

This is by far the best book on the subject of correspondence which has come to the notice of the writer. It is really a complete manual for business correspondence, equally suitable for the business man and the high-school student of correspondence.

One thing differentiates this volume from its many predecessors as a high-school textbook and that is the absence of the numerous exercises in grammar. A knowledge of grammar is presupposed, and the time of the student, and of the teacher, is not wasted in needless review of elementary principles of grammar, which should be confined to the first or second year of the high-school course. The chapter on "Mistakes in Language" will serve to call the attention of the student to the usual grammatical errors found in business letters. This book aims to place the study of correspondence where it really belongs, in the third or fourth year of the high-school course.

The exercises provided by the author afford every opportunity for outside work on the part of the student. These exercises aim to bring to the attention of the student the principles of correspondence as actually applied in practical business. The letters shown in the text as illustrations are very valuable, and give the student an idea of what actual business letters, of the various types discussed, really look like as they come from the offices of business concerns.

One feature of the author's plan is not shown in the text—outline plans for the high-school teacher, giving full and complete illustrations of the method of procedure for some forty lessons. This feature of the book will make it of great value, especially to the teacher who has a good knowledge of English but who has not had experience as a teacher of correspondence. The exercises, while they may look to be very much beyond the ability of the average "high-school Junior or Senior," are, in fact, no more difficult than those found in a half dozen or more correspondence texts now used in many high schools. These exercises aim to develop the judgment of the student as to what a good business letter should be in every detail. The author's aim is to have the student learn how to write "effective business letters" by actually writing letters of the various types studied.

All in all, this book is so far ahead of every other correspondence textbook on the market that it ought readily to find a place on the list of high school textbooks.

D. WALTER MORTON

UNIVERSITY OF WISCONSIN

Education through Play. By H. S. CURTIS. New York: Macmillan, 1915.

The fact that this book has been published so nearly at the same time with another recent authority and reference book on play—Forbush's *Manual of Play*—shows the tendency of the present time in reverting almost spasmodically from formal to informal methods of physical training. Like the author of the former book, recently reviewed in these pages, Mr. Curtis has succeeded in doing a splendid piece of work. It differs from the other book mentioned in that it puts little stress on the side of unorganized games and plays. The material here is complete in that it shows first of all what play is and brings out the three well-known theories of play: the theory of surplus energy, play as a method of education, and G. Stanley Hall's recapitulation theory of play. There is a discussion of the place of play in physical training. Possibly here the author is excusable for veering a little too far from the idea of formal gymnastics in physical education which by the leading educators is still considered necessary in a complete scheme of their subject. The relation of play to the training of the intellect and to the formation of habits and character is emphasized by practical illustrations of interest to the casual reader. Since the author seems to speak with authority of play as it develops and differs in the several European countries, the comparative side of the subject is well brought out, and finally, together with helpful suggestions of the most successful playground of our own American cities, there are given definite data in regard to the best and quickest methods of starting playgrounds, recreation centers, school camps, or athletics in secondary schools and colleges. A brief appendix gives perhaps unnecessarily the rules for some of the common games which may be used on many occasions. This book has already been adopted as a text in some normal schools where courses on play are given and itself helps in determining the need and value of such a course in a well-organized curriculum whether of physical or general education.

Practical Zoölogy. By ROBERT W. HEGNER. New York: Macmillan, 1915. Pp. xv+495.

Practical Zoölogy is a text designed for use in secondary schools. The author begins with a discussion of the insect group, that being the one which he feels will be most familiar to the average student. After giving but slight attention to the structure of a typical insect (the grasshopper), he takes up the question of the economic importance of the phylum. In this connection the following subjects are treated: insects injurious to vegetation, parasitic insects, household pests, beneficial insects, insects and their relation to disease transmission. Hegner then discusses the subject of classification in general and of the Insecta in particular. In succeeding chapters he deals with the invertebrate subkingdom in reverse order, beginning with the Anthropoda and ending,

in chap. xxv, with the Protozoa. In the next chapter, an introduction to the subkingdom of Vertebrates, the author treats the fundamental subjects of the nature of protoplasm and the cell, and kindred topics. His first chapter on Vertebrates deals with the frog, its structure, and its life-history. The author follows this with successive chapters on the various vertebrate phyla in the usual order, closing with a chapter on the "Progress of Zoölogy" which serves to familiarize the student with certain of the great names of science and with the service of the government departments in accumulating scientific data and encouraging scientific research.

Hegner's text strongly reflects the modern tendency toward applied science, which is gradually coming to have a significant influence upon the presentation of the biological sciences. As a practical and, to use the author's own term, civic treatment of zoölogy, it is particularly interesting in the stress laid on the ecological side of the subject. The chapters on Insecta and on the vertebrate phyla are unusually good from this standpoint. The text supplies a basic interest in this regard, which will help any teacher in arousing enthusiasm for field work. The knowledge of the environment of animals and a study of them in relation to their natural habitat is too vital a part of zoölogy to be slighted as is so often done in secondary schools. The economic aspect of the subject is treated in a practical and well-balanced manner, and not at the expense of the morphological phase, unless it be in the matter of illustrations. The chapters on birds are particularly admirable. Bird-study is too often omitted from high-school curricula, no doubt because of the fact that, from a purely evolutionary and structural point of view, birds are not essentially interesting, but it should be included since the general and generous distribution of the group and its economic significance certainly entitle it to recognition as an important animal phylum.

Hegner follows a somewhat unusual classification and an order of procedure which, under some conditions, might prove impractical. His classification rates Nemathelminthes and Annelida as separate phyla (phylum 5 and phylum 6, respectively) instead of grouping them as classes under the common phylum Coelhelminthes, as is rather generally done. The advisability of such a sequence as the author adopts may be questioned. The attempt to proceed from the known to the unknown in presenting a biological science generally involves an illogical method of procedure, which is likely to be confusing to the beginning student and which sacrifices or at least obscures an understanding of the evolutionary principles. Moreover, that the student shall have made his study of the lower forms of life without the preliminary study of the protoplasmic and cellular basis of life seems particularly unfortunate when one realizes how much better these same simple forms illustrate the nature of protoplasm than do the more complex animals. A sequence of chapters, however, is easily regulated by the teacher to meet the needs of her group of students.

On the whole, therefore, the author of *Practical Zoölogy* seems to have admirably realized his aim, to combine a general knowledge of animals and of zoölogical principles with a discussion of the relations of animals to man, in such a way as to interest the student.

GRACE ADALINE WELLS

STATE NORMAL SCHOOL
LA CROSSE, WIS.

The Teaching of Handwriting. By FRANK N. FREEMAN. New York: Houghton Mifflin Co., 1914. Pp. vii+156. $0.60.

Professor Freeman's book gives an admirable summary of what educational science knows or reasonably conjectures about the learning and teaching of handwriting. A noteworthy feature, too rare in books both on educational theory and on practice, is the scrupulous care exercised in showing where definitely established and verifiable facts end and opinion begins. The meagerness of exact knowledge in so important a skill as handwriting is indicated by the fact that in the sections on the physiology of writing and on the psychology of learning to write the author is compelled to draw so largely upon the general principles of voluntary control and the acquisition of skill rather than upon a special body of information concerning writing itself.

A clear analysis of the development of voluntary control and the attainment of skill and automaticity in writing co-ordinations is followed by a judicious discussion of hygienic requirements for posture, for the eyes, and for movement. In the section on the teaching of handwriting the value of good form for efficient action is emphasized in such matters as penholding and the position of the hand, wrist, arm, and body. On the learning process itself such recommendations as these occur: "Repetition must be accompanied by improvement to be of value. . . ." "Whenever practice is for the purpose of improvement, then, it must be carried on while the pupil is giving full attention to what he is doing." "There is evidence in support of the belief that, contrary to prevailing opinion, plateaus are not essential." "The pupil's achievement should chiefly be compared with his own past achievement rather than with that of others." "It is probably never advantageous, at least in the elementary school, to extend the practice period beyond twenty minutes." "Imitation of a person writing is better than imitation of a copy merely." General and specific physiological and psychological principles are brought to bear in very definite recommendations for writing in the primary, intermediate, and grammar grades.

For the measurement of progress in writing, in addition to such scales of general merit as those of Thorndike and Ayers, standards of speed and analytic scales for use in diagnosis and correction of defects in uniformity of slant, uniformity of alignment, quality of line, letter formations, and spacing are set up. The objective analysis of general merit into the elements on which it

rests furnishes the teacher of writing a useful instrument even though the scales are put forth as tentative merely.

The book is valuable to teachers, supervisors of writing, and students of education, not only for the positive information it gives, but also for the program of work which it suggests in order that our knowledge of the psychology and pedagogy of handwriting may be adequate.

V. A. C. HENMON

UNIVERSITY OF WISCONSIN

Types of Teaching. By LIDA B. EARHART. New York: Houghton Mifflin Co., 1915. Pp. xvi+277.

This volume is similar in scope to Strayer's *Teaching Process* and Chartèrs' *Methods of Teaching*. Most of the chapters are devoted to discussions of the following types of teaching exercises or lessons: objective, inductive, deductive, appreciation, habit-forming, study, assignment, recitation, review, and socializing exercises. The first chapter (on subject-matter, its nature, development, and purposes) parallels Charters' discussion of Dewey's social point of view concerning subject-matter. The influence of Dewey and McMurry is evident in many places and the author graciously acknowledges her indebtedness in the preface.

The author very wisely refrains from introducing much technical psychology as the explanatory basis of her practical points. In this respect, the book is superior to several recent books which have unnecessarily introduced much useless, incomprehensible, and often invalid psychological discussion as the assumed justification for perfectly good educational theories and practices.

The author is eclectic in her treatment of all topics, furnishing a happy balance between progressive theory and the possibility of practical applications under present conditions in the better elementary schools. She is sympathetic, non-dogmatic, and objective in most discussions, and refrains from making her own opinions unpleasantly obtrusive.

The book is generally well unified in its larger organization and within its various parts. Each chapter expresses a few points clearly and adequately and with ample practical illustrations. If any exception were to be taken to the general organization, it would concern the duplication between (*a*) the discussions of reflective thinking (under the head of inductive and deductive lessons) and (*b*) the discussion of training to study. In the history of recent publications on methods of teaching, it is interesting to note the complications that have resulted from the efforts of writers to bring together the following topics: (*a*) the Herbartian formal steps, (*b*) the older psychological discussions of induction and deduction, (*c*) Dewey's masterly unified treatment of reflective thinking, and (*d*) training pupils in reflective studying. The product often consists of an inconsistent mixture of (*a*), (*b*), and (*c*), with a duplication of these three in a separate discussion of (*d*).

The exercises at the end of each chapter are very good, being well selected and practical. They are of the same type as those found in the books by Strayer and Charters mentioned above. The type of exercise which distinguishes Thorndike's *Principles of Teaching* is usually lacking, that is, exercises which present real source material for the reader of the book to analyze.

Both the author and publishers are to be congratulated, the former upon the interesting, practical, and effective character of her work, the latter upon the excellent quality of the presswork, paper, and binding.

S. C. PARKER

UNIVERSITY OF CHICAGO

Citizens in Industry. By CHARLES RICHMOND HENDERSON. New York: D. Appleton & Co., 1915. Pp. xix+342.

Retrospection is never out of place; and in our age of rapid industrial expansion and development it is especially desirable to pause now and then to see where we are going, how far we have gone, and what we have accomplished. Dr. Henderson's volume *Citizens in Industry* performs precisely this function of review and retrospection with the purpose of making clear our present location in the course of industrial progress.

The opening chapter sets out the industrial situation and its problems. The following chapters consider in detail the progress and present condition of various features of industrial welfare: health and efficiency; economic inducements to secure efficiency; methods of improving conditions of home life, of employees; responsibility for homeless and youthful employees; education, both cultural and vocational; experiments in industrial democracy. Seldom is it that a more comprehensive general view of the contemporary situation in the working world is presented in so brief a space. Dr. Henderson was confined by no political or geographical boundaries. Illustrations from Chicago; Essen, Germany; Madras, India; Tuskegee, Alabama; Osaka, Japan; Paris; Holland; China, crowd one after the other.

Particular interest attaches to this book because the last work with which Dr. Henderson was engaged was the reading of its proof. The volume reflects both his deep personal sympathy with the working-man and his unshaken conviction that we shall reach a democratic solution of the labor problem.

LEONARD D. WHITE

CLARK COLLEGE

Effective Public Speaking. By FREDERICK B. ROBINSON, A.M., PH.D. Chicago: LaSalle Extension University, 1915. Pp. iv+467.

Dr. Robinson, in somewhat over four hundred and fifty pages of the present volume, covers the entire field of speech structure and delivery. The book is divided into twenty-five lessons. Each chapter is followed by test questions

which aim to sum up for the student the important principles. The author is to be commended for a very lucid statement of his ideas and for the freshness of much of his illustrative material. The book is quite obviously prepared for correspondence study and the necessities of this particular field of textbook-making have impelled a more elaborately detailed treatment than would ordinarily be required in a book of this sort. *Effective Public Speaking*, although admirably adapted to the correspondence-school idea, is by that very fact qualified in its value as a manual for general classroom work. The teacher of public speaking would do well, however, to acquaint himself with the contents of the new volume.

ANDREW T. WEAVER

NORTHWESTERN UNIVERSITY

The Feelings of Man. By N. A. HARVEY. Baltimore: Warwick & York. Pp. viii+276.

Although written by a normal-school teacher, this book treats of the feelings, not from their pedagogical aspect, but from the point of view of systematic psychology. Those interested primarily in educational applications will find no predigested materials for their immediate use.

The conception of feeling presented deviates from the more conventional treatments. Feeling is identified with the emotions, moods, and sentiments. Feelings differ in kind, strength, and affective tone. Pain and pleasure are thus attributes of feeling. The conception of pain as a sensation is discarded. Feeling or emotion is wholly subjective and has no sensational content. The conception is thus diametrically opposed to the theory of James, who regards emotion as comprised mainly of sensational content, differences in kind being due to differences in sensational components.

Explanation is frankly neural. The neural correlate of feeling is resistance in brain centers. Each of the other aspects of mental life is also stated in neural terms and a large part of the book is devoted to working out the logical relations between the various neural correlates and explaining in this manner the factual relations which feeling bears to consciousness, intellect, memory, attention, and will. The validity of the neural hypothesis is frankly recognized to depend upon its pragmatic and explanatory value.

Like all theoretical systematizations in this field, the conception will probably win but a limited number of adherents. The treatment is expository and argumentative throughout and the attempt to be clear, precise, and convincing at times renders the discussion somewhat labored and monotonous.

HARVEY CARR

UNIVERSITY OF CHICAGO

BOOK-NOTES

SCOTT, HARRY F. *Elementary Latin.* An Introductory Course. Chicago: Scott, Foresman & Co., 1915. Pp. xx+348. $1.00.

This book tries to make Latin as attractive as possible, by the arrangement of its parts, by the presentation of Caesar and Eutropius, and by the liberal insertion of illustrations.

REEVE, WILLIAM D., and SCHORLING, RALEIGH. *A Review of High-School Mathematics.* Chicago: The University of Chicago Press, 1915. Pp. x+70. $0.40.

Especially useful in fourth-year classes reviewing for college-entrance requirements.

GOLDING, ALEC A. *An Introduction to General Geography.* Cambridge: University Press, 1915. Pp. x+222. $1.00.

A British text. Nothing remarkable.

WALLIS, B. C. *The Teaching of Geography.* Cambridge: University Press, 1915. Pp. x+221. $0.90.

Part of the series of Cambridge Handbooks for (British) Teachers.

HEDGES, ANNA CHARLOTTE. *Wage Worth of School Training.* An Analytical Study of Six Hundred Women-Workers in Textile Factories. New York: Teachers College, Columbia University Contributions to Education No. 70, 1915. Pp. xvi+173.

KIRKPATRICK, EDWIN A. *The Use of Money.* Indianapolis: Bobbs-Merrill Co., 1915. Pp. 226.

LISTER, C. C. *Muscular Movement Writing.* New York: Macmillan, 1915. Pp. vi+114.

CAJORI FLORIAN. *Grammar School Book.* New York: Macmillan, 1915. Pp. ix+437.

This grammar-school arithmetic presents among other features a considerable use of curves to represent empirical data. The technique of language in arithmetic has been simplified. Much attention is given to the review of fundamental operations.

MEIGS, CORNELIA. *The Kingdom of the Winding Road.* New York: Macmillan, 1915. Pp. vii+238.

Fiction.

KENNEDY, JOSEPH. *Fundamentals in Methods.* New York: Macmillan, 1915. Pp. xxiv+326. $1.25.

This valuable handbook of methods deals entirely with the theory of methods in elementary schools. Much attention is given to reading as a method of developing self-expression. The subject of hygiene is given a chapter, and a rather cursory survey is made of the field of moral instruction.

EASTMAN, MARY HUSE. *Index to Fairy Tales, Myths and Legends.* Boston: Boston Book Co., 1915. Pp. ix+311. $2.25.

Invaluable for school libraries. Not intended for the special student of folk-lore. Suffers from clumsy arrangement.

HALL, HERBERT J., and BUCK, MERTICE M. C. *The Work of Our Hands.* New York: Moffat, Yard & Co., 1915. Pp. xxxiii+211. $1.50.

This is a study of occupations for invalids which is of special interest in view of the French experiments in this field during the present war.

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This is an extremely fascinating book by a man who knows whereof he speaks. It tends to illuminate for grammar-school students what the author rightly calls "the dark continent of South America." The illustrations and maps are excellent, and Mr. Bowman writes as one having authority.

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